NATUR CYMRU

The Nature of Wales

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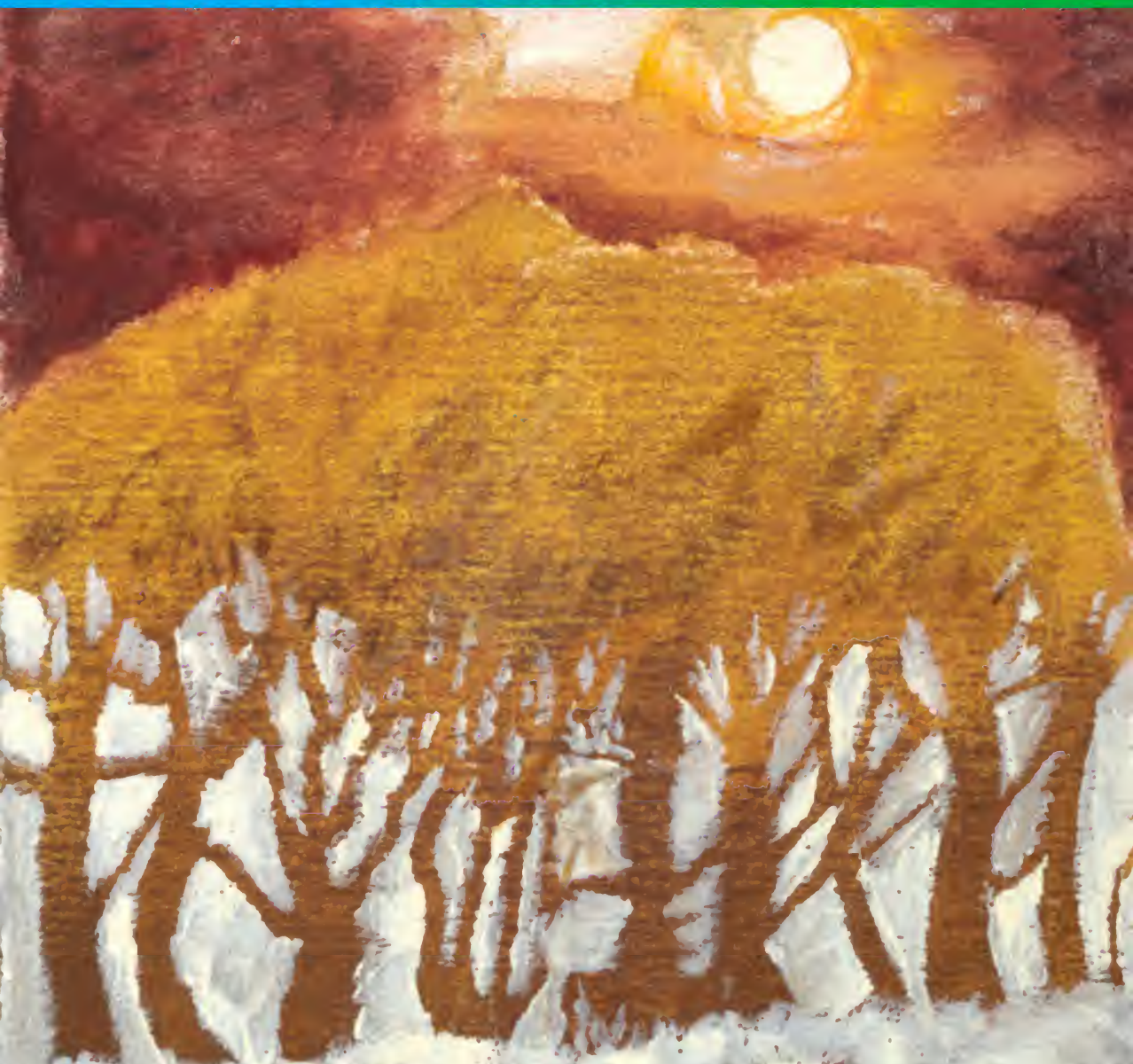

- Water voles
- Cadair Idris
- Bechstein's bats
- Blanket bog
- Newport wetlands
- Thinking BIG
- Denmark Farm
- Marloes Heath
- Books, News, Comment...

NATUR CYMRU
The Nature of Wales

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Natur Cymru is intended to promote the exchange of information about biodiversity and encourage debate. If you have information, ideas for articles or artwork which you think might be of interest to readers, please contact the Editor.

Mae *Natur Cymru* wedi'i argraffu ar bapur di-glorin a ddaw o goedwigoedd cynaliadwy sy'n cael eu rheoli.

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NATUR CYMRU GOLYGYDDOL

Yn gynnar un bore, roeddwn yn cael sgwrs anodd iawn ar y ffôn ynglŷn â chasglu a lladd dau o'm bustych. Y tu allan i'r ffenestr, beth ddaeth i'r golwg yn sydyn dan gafn blodau a oedd wrth ymyl wal cerrig sych ond bronwen. Edrychodd o'i chwmpas, oedodd, ac yna byrlymodd o'i chuddfan. Roedd ganddi wyneb crwn, chwilfrydig, corff isel a chynffon fer. Am beth amser, bu'n gwibio o amgylch y cafn yn ceisio penderfynu beth i'w wneud nesaf, ac yna diflannodd fel seren wib. Roedd yr ychydig eiliadau hynny fel oriau, ac maen nhw wedi aros yn fy nghof hyd heddiw. Es yn fy mlaen i sgwrsio wedi fy llesmeirio'n lân.

Yn ddiweddar, mae ffermio wedi cael mwy na'i siâr o drafferthion, ac rwy'n pendroni'n aml pam yn y byd mawr ydw i'n cadw gwartheg a defaid ac yn gwneud yr holl waith caled sy'n dod yn eu sgîl. Wrth drafod hyn efo rhywun sydd mewn sefyllfa debyg i mi, fe ddaethom i'r casgliad ein bod yn cymryd ein hanifeiliaid yn ganiataol pan mae popeth yn iawn. Dim ond pan fydd pethau'n mynd o chwith yr ydym yn ystyried y peth o ddifrif. Yn sicr, fe all cadw da byw ddod â llawer iawn o helbulon i'ch rhan.

Yn yr un modd, mae'n ymddangos bod yr amgylchedd mewn rhyw argyfwng byth a hefyd. Dydy pethau ddim yn fêl i gyd o bell ffordd, ac mae yna straeon diddiwedd am rywogaethau'n diflannu, am goedwigoedd a haenau rhew yn nychu, ac am y ffaith nad oes gan y blaned ddigon o adnoddau i ddiwallu ein gofynion a'n galwadau cynyddol. Ond efallai y byddai'n dda o beth i ni dreulio mwy o amser yn gwerthfawrogi'r hyn sy'n dal i fod o fewn ein gafael - amser i gnoi cil, i graffu ac i ryfeddu.

Mae'r rhifyn hwn yn llawn straeon am yr hyn y mae pobl yn ei wneud er budd natur a'r hyn y mae natur yn ei wneud i bobl. Yn wir, mae'r arwyddion yn galonogol, ac enghraifft o hyn yw'r cynlluniau cadwraeth mwy uchelgeisiol sy'n cael eu datblygu ar hyn o bryd. Mae'r rhifyn hwn yn cynnwys erthyglau am orgorsydd, rhostiroedd arfordirol, gwlyptiroedd a llygod pengrwn y dŵr, ac mae pob un yn adlewyrchu'r egni, y brwdfrydedd a'r penderfynoldeb sydd gan eu hawduron a llawer ohonom ni o ran gwneud ein gorau dros natur.

O ble y daw hyn? Mae yna ddigon o dystiolaeth ar gael ynghylch pwysigrwydd natur o safbwynt lles, ac mae awduron fel Edward O Wilson wedi datblygu maes neu bwnc - *biophilia* - yn ymwneud â'r cariad sydd gan bobl at natur. Fodd bynnag, go brin fod hyn yn berthnasol yn y byd materol sydd ohoni, lle daw pobl i gysylltiad â'r amgylchedd yn sgil materion economaidd.

Mewn rhyw ffordd neu'i gilydd, mae'r rhan fwyaf ohonom yn trysori'r pethau anfaterol a gawn gan natur. I mi, mae hyn yn cyfateb i weld y fronwen drwy'r ffenestr. Mae profiadau o'r fath yn rhoi ymdeimlad i ni fod pethau mwy a phwysicach i'w cael, gan dynnu ein sylw am eiliad oddi ar hynt a helynt ein bywydau ein hunain, a chan ddangos i ni beth yw gwefr go iawn. Gall ysgrifennu am natur roi gwefr o'r fath i ni, o dro i dro – taro tant, rhannu syniad, cyfleu rhywbeth cyffrous. Gobeithio'n wir y bydd y rhifyn hwn yn llwyddo i danio eich brwdfrydedd chi dros natur. Os mwynhewch chi'r hyn a ddarllenwch, cofiwch ddweud wrth eraill am y cylchgrawn, gan nad oes dim byd gwell na gair da i gynyddu ein cylchrediad. Hefyd, rydym angen ysgrifennydd brwd/ysgrifenyddes frwd i'n helpu i redeg y cwmni a chynyddu nifer y darllenwyr. Os oes gennych ddiddordeb, cofiwch roi gwybod i mi!

James Robertson

NATUR CYMRU EDITORIAL

Early one morning I took a particularly difficult phone call about the collection and slaughter of two of my bullocks. Immediately outside the window, from under a plant trough by a dry-stone wall, a weasel stuck out its head. She (I'm guessing here) looked each way, hesitated, then poured herself out into the open. Her round, inquisitive face, low-slung body and short tail, half gliding, half darting, explored the area around the trough as she decided what to do next, and then disappeared like quicksilver. Those few seconds lasted ages, and have stayed with me. I continued my phone conversation on automatic pilot, in a daze.

Farming has had more than its share of troubles lately, and I often wonder why I keep cattle and sheep and put myself through the trials which go with this particular activity. Commiserating with someone in a similar position, we agreed that when all is well with your animals, you take them for granted; you only take notice of them when things go wrong. Keeping livestock presents you with a series of crises.

Equally, the environment seems to be in perpetual crisis. Things are undoubtedly going wrong, and there are endless reports on disappearing species, shrinking forests and ice sheets, and all the other symptoms of human demands for resources exceeding the planet's capacity to supply them. But perhaps there is a case for spending more time appreciating what we have still got; to stop, look and wonder.

This issue is full of accounts of what people are doing for nature, and what nature is doing for people. There are encouraging signs, such as the bigger, more ambitious conservation schemes which are now taking shape. What all the articles in this issue, about blanket bogs, coastal heath, wetland and water voles and so on, reflect is the drive, enthusiasm and determination to do their best for nature which their authors and many of us share.

Where does this come from? There is abundant evidence of the importance of nature for feelings of well-being, and writers like Edward O. Wilson have developed a whole subject, *biophilia*, about the innate love humans have for nature. However this hardly translates into the material world, where economics is the medium through which human transactions with the environment are conducted.

Most of us, one way or another, appreciate the non-material value we obtain from nature. This I would like to call 'the weasel outside the window'. It offers us something outside ourselves, grasping our attention away from our own lives and attendant ills, and presenting us instead with the thrill of life itself. At its best, this is what writing about nature can bring - a chord struck, a thought shared, an excitement communicated.

I hope you will find food here to nourish your own enthusiasm for nature. If you enjoy what you read, don't forget to tell others about the magazine, as personal recommendations help us grow organically. We also need a dynamic company secretary, to help run the company and increase our readership. If you are interested, please let me know!

James Robertson

Matt Sutton

Oil Age Heathland: an update on the Marloes Coast Project

Botanists from BSBI visit Pits Pond in September 2007

The story of the heathland re-creation work on the Marloes coast in Pembrokeshire featured in an earlier edition of this magazine (Natur Cymru 12:18-22). It's only four years since the project got underway, but there is plenty to report. ***MATT SUTTON*** *describes how, when conditions changed, an astonishing array of plants and other creatures moved in.*

The work here started in earnest in September 2003, when a combination of excavators and dumper trucks removed the top few inches of soil from parts of the ploughed fields. This soil was used to re-form some of the hedge banks that had been removed during the era of field enlargement. The scraped areas had, by the following summer, become covered in annual weeds. Scentless mayweed and field pennycress were particularly abundant on the clay soils, whilst knotgrass became dominant on the sandier soils. Seeds of less common species such as weasel's snout and corn marigold may have been buried around the plough horizon, and found the newly exposed bare ground to their liking. Alongside the arable weeds, a variety of cliff-edge species quickly appeared in the scraped areas, including English stonecrop, thrift and buckshorn plantain. In contrast, perennial weeds such as rape and sow-thistles predominated in areas that hadn't had any soil removal. Couch grass quickly formed a thick sward on un-scraped sandier fields. The weedy fields provided good cover for birds, and the winter flocks of linnets and skylarks attracted birds of prey like merlins and hen harriers.

The soil scraping reduced the levels of soil nutrients, built up over the years by annual fertiliser applications. However, the use of waste sulphur from a local oil refinery was crucial to the heathland re-creation work. This counteracted the legacy of lime in these fields, and drove down the pH towards its more natural acidic state. We applied varying amounts of sulphur to the fields in August 2004, and then followed this in October with trailer loads of seed-rich heather brash. These were cut from Plumstone Mountain, a mature heathland in the middle of the county.

The heather brash was broadcast very effectively by using a muck spreader, which left a thin, patchy mulch over the ground. Western gorse appeared the following summer, but it took a full year for ling and bell heather to start sprouting.

Matt Sutton

Regenerating ling on treated ground

Effects of sulphur

Meanwhile, the sulphur began to be oxidised by specialist soil bacteria, and the pH rapidly began to fall. By the following autumn we were recording pHs averaging 5.6 in the areas with a low application rate, and 3.7 where we'd used twice as much. Some areas accidentally got a still higher dose, and hit pHs as low as 2.4. Three years later though, pHs appear to have stabilised. This may be because the optimum range for the key *Thiobacillus* bacteria is above 3, so sulphur metabolism is checked below this point.

Heather seedlings flourished in scraped, sandy areas with a light sulphur application, but initially struggled to germinate elsewhere. A flourishing rabbit population in the open fields didn't help. Many of the arable weed species disappeared with the falling pH, and the wintering finch flocks moved on to the adjoining cereal fields, now under bird-friendly management. The heathland fields did play host to two shorelarks for a fortnight though, the brown fields scattered with chunks of the yellow sulphur providing these rare arctic visitors with a curiously effective camouflage!

Come the second summer, the couch grass that had smothered the unscraped fields was starting to weaken, as the sulphur worked its way down into the rooting zone. Flourishing heather plants came up through the grass, which had effectively been acting as a nurse crop.

Monitoring work by both Bournemouth University and IGER (Institute of Grassland and Environmental Research) also showed that the dramatic changes taking place above ground were being matched by what was happening below. The acidification decreased levels of most major plant nutrients such as potassium, sodium, magnesium and calcium. Soil phosphorous availability increased significantly though, and nitrogen levels were barely affected. Most competitive plant species looking to take advantage of this unlocked phosphorous would, however, have been checked by aluminium toxicity as this metal is mobilised when the pH falls below 5.

Huge clumps of sea plantain suggested that some species were able to benefit.

Removing topsoil seems to have had much less impact on the soil chemistry than applying sulphur - we would perhaps have had to go deeper to have successfully removed the nutrients accumulated under the previous farming regime. There is still a marked contrast between the short, open vegetation on the areas that have been scraped, and the luxuriant grass growth on the banks that have been made with the scraped material. Perhaps the interplay of soil depth and soil nutrient status needs further study here.

Mike Hencliman/Natural England

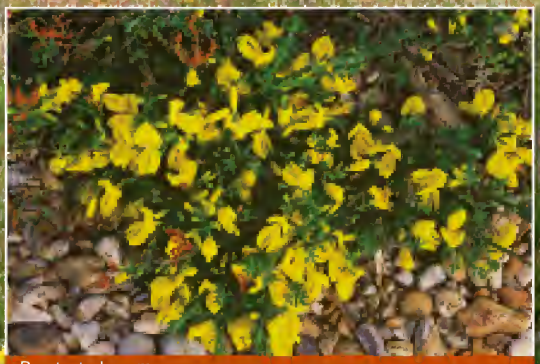
Scentless mayweed

Pat Doody/Natural England

Portland spurge

CCW

Sea plantain



Peter Wakely/Natural England

Prostrate broom

Matt Sutton

Successfully developing heath in end field

New arrivals

My own survey work has continued to track the new arrivals – there can be few pieces of coastal land in west Wales with such a dynamic, evolving flora! Portland spurge perhaps blew in off the cliffs, whilst hairy bird's-foot trefoil started appearing from seed in a number of areas, including a small area of the hay meadow where we had removed turf in order to fashion a Pembrokeshire hedge bank. Allseed found its way into the scraped area on damp clay in the westernmost fields, accompanied by lesser centaury which hadn't previously been recorded away from the south coast of the county. The laying of water pipes through a gateway brought three-lobed water crowfoot back to the surface for a winter.

The most intriguing find came last summer, when I discovered a single plant of bristle bent grass *Agrostis curtisii* at the edge of one of the fields. This has long been a missing component of Pembrokeshire's 'humid heaths', despite occurring in otherwise similar vegetation from Cornwall round to Gower. I looked for it in the cut areas of Plumstone Mountain, without success, and was starting to suspect that it had arrived on the boots of one of the group of heathland specialists visiting from England the previous year. Eventually it was my colleague Jon Hudson who, after seeing it here on a BSBI meeting, located it on Plumstone and in doing so demonstrated that true H4 *Ulex gallii-Agrostis curtisii* heath may be represented in the county after all.

Bryophytes have not been forgotten: Sam Bosanquet has been recording monitoring plots in detail. The fields still mostly support arable and waste ground species, such as *Barbula convoluta* and *Tortula truncata*, but *calcifugous* (lime-hating) species such as *Ceratodon purpureus* and *Pleuridium acuminatum* have started to appear. Low doses of sulphur didn't impact much on the bryophytes, and helped to retain open ground suitable for many species. High sulphur doses, in contrast, prevented almost all bryophyte colonisation. The soil-stripped plots have displayed the greatest abundance and variety of lower plants, including notable species like *Drepanocladus polygamus*, *Acaulon muticum* and the

Joyce Fleur

Green tiger beetle

hornworts *Anthoceros punctatus* and *Phaeoceros laevis*. The first of these is likely to be a colonist from the nearby coast, whereas the other species are more likely to have grown from dormant spores.

Meanwhile, Steve Sutcliffe has been assisting with bird recording, and he's noted subtle changes in the number and distribution of common breeding species. Skylark numbers appear to be on the up, and wheatear have at least attempted to breed. Though numbers remain high on this part of the coast, and the grasslands are grazed short at key times to supply breeding pairs with good foraging areas.

Invertebrate recording has been limited to my own observations on species such as the common stiletto fly, green tiger beetle and great green bush cricket, coupled with a limited amount of pitfall trapping by Bournemouth University who recorded a variety of predatory ground beetles and wolf spiders. The bare ground appears to be rich in solitary wasps and other hymenoptera, and any recording of this group by visiting specialists would be welcome.

So what's it looking like now? Well, in some areas the heathland is remarkably well developed, but in

Creu Gweundir mewn Oes Gyfoes

Ym mis Medi 2003 crafwyd haenen o bridd o wyneb caeau âr ar fferm Trehill, ger Marloes. Pwrpas hyn oedd lleihau'r maetholion a fu'n crynhoi dros y blynyddoedd. Ond y nod hirdymor oedd adfer gweundir. Ac roedd y defnydd o wastraff sylffwraidd o'r burfa olew leol, er mwyn troi'r pridd yn fwy asidaidd, yn elfen allweddol o'r arbrawf.

Chwalwyd y gwastraff sylffwr, ac yna'r torion grug, yn ystod 2004. Newidiodd cemeg y pridd yn sylweddol ers hynny. Mae sawl maetholyn wedi prinhau ond cynyddu wnaeth y ffosfforws a'r alwminiwm ac ni fu newid yn lefel y nitrogen. Datblygodd y gweundir yn dda mewn mannau ond mae digon o bridd agored ar ôl yn y rhannau mwyaf asidaidd. Tybed ai'r tir agored hwn fydd yn cynnal y llystyfiant grugog yn y dyfodol, wrth laswellt ledu nôl? Y darnau tir lle crafwyd y pridd sydd â'r amrywiaeth orau o fryoffytau ac i'r llecynnau hyn hefyd y daeth blodau fel y ganrhi goch fach. Mae angen dysgu mwy, yn sicr, am y berthynas rhwng dyfnder pridd a lefel maetholion. Mae ehedyddion ar gynnydd a chynefinoedd eraill o fewn ardal y prosiect yn ymateb yn dda i'r newid rheolaeth. Bellach, gwelir camri'n tyfu ar ben y clogwyni, mae'r pelenllys yn lledaenu yn y gwlypdir a blodau fel troellig yr ŷd a chamri'r ŷd yn addurno'r caeau âr. Mae tenantiaid yr Ymddiriedolaeth Genedlaethol i'w canmol am gefnogi'r newid a'i ddefnyddio i helpu marchnata'u cynnyrch fel cynnrych cadwraeth.

Matt Sutton

Ideal mix of plants and bare ground on establishing heath

the most acidified areas there's still plenty of bare ground. Ragwort is prolific in places, and could be a potential problem to the grazing regime for a few years yet. Over time though, it may well be the currently bare areas that hold on to their heathland plants while the other areas grass over again.

Although this update has concentrated on the heathland work, the other habitats within the project area are responding well – chamomile and prostrate broom have established in the cliff-top grassland, stoneworts and pillwort have spread into the new pools on the mere, and interesting arable plants such as cornfield knotgrass and corn chamomile are flourishing amongst masses of corn spurrey in the arable margins.

And finally, this experiment has to take place within the rural economic framework. CCW are supporting the tenant farmers with a 20-year management agreement, but the tenants are also making the land work by embracing the concept of marketing conservation-grade produce. The National Trust bestowed their 'managing change' award on Pete and Gina Smithies this year, and the Welsh black cattle that graze the project site are selling well – check out **www.trehillfarm.co.uk**!

***Matt Sutton** is a Senior Conservation Officer with the Countryside Council for Wales in Pembrokeshire.*

Penny Neyland

Water voles at Morfa Berwig

It is one thing to manage wildlife on a nature reserve: meeting the needs of an endangered mammal like the water vole within an area which is being developed is another matter altogether. Undaunted, an Action Group has taken up the challenge, as ***MIKE JENKINS, DAN FORMAN*** *and* ***ISABEL MACHO*** *explain.*

Sometimes ignorance is bliss. Being unaware of the pitfalls and obstacles ahead, you forge on with your plan for enhancing water vole habitat, innocently assuming that it will be nothing less than straightforward. You think that the scheme to improve public access will be relatively easy and that your concept of promoting the site's development as an exemplar of sustainable development will be embraced without question - surely having a wildlife-rich area on your site can only be seen as an asset and never a constraint!

Dan Forman

Water vole trap

Then, as you struggle with grant applications, match funding, contributions in kind, delays everywhere, dumping of rubbish, squatting by travellers and people who just can't see water voles

Isabel Macho

and sinuous ditches on a potential development site as any sort of bonus, you soon wake up. What keeps your aim true and your focus clear is your group's commitment to the basics - that it's essential to conserve water voles wherever they occur and that any development on the site should be sustainable, with water vole habitat part of it.

With that in mind the Morfa Berwig Project was started – the first project of the Llanelli Water Vole Action Group. The group is drawn from statutory agencies and voluntary bodies with a keen interest in both the area and the species – BTCV Cymru, Cambria Archaeology, Carmarthenshire County Council, Countryside Council for Wales (CCW), Environment Agency Wales (EAW), Keep Wales Tidy, Llanelli Green Network, Llanelli Naturalists, Millennium Coastal Park, Swansea University, Welsh Assembly Government (WAG) and the Wildfowl and Wetlands Trust.

Much of the water vole interest in south Carmarthenshire is centred on a low-lying area to the south-east of Llanelli. The site occupies former saltmarsh, reclaimed since the medieval period. A great deal of this landscape is now degraded through urban and industrial development, to the extent that the coastal grazing marsh has been reduced from 1200ha in the mid 19th century to less than 500ha in the mid 1990s, and the decline continues.

The Group decided to focus its attention on a 14.5ha site at Morfa Berwig on the eastern coastal approaches to Llanelli. It is owned by Carmarthenshire County Council and has been zoned for a mixed development within the Unitary Development Plan. The site is typical of a coastal wetland that has been reclaimed over a long period of time, with flood defence banks and irregular fields separated by sinuous, former tidal creeks, clearly visible on aerial photographs. Unfortunately, large areas of the centre of the site have been raised and cleared to create development platforms, which have had an impact on several boundaries and drains.

As well as conserving water voles and associated species, the aims of the Morfa Berwig Project include: sympathetic future development at the site; community involvement through the establishment of a circular walk for local people; interpretation of the natural and industrial history of the site and surrounding area; and scientific research on the water vole population on the site, their movements and relatedness to others in the area.

Funding for the project has been received from WAG

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Reproduction of an aerial plan of Morfa Berwig

through their Department of Enterprise, Innovation and Networks, from CCW, and through a grant from CWM Environmental Ltd, which was awarded from their 'Community and Environmental Fund' managed by GrantScape.

History and wildlife

A map of lands at Berwig produced in 1751 shows that many of the present day landscape components had been established by the mid 18th century. Most of the area was semi-enclosed common land. By 1822 the present layout of fields had been established and the Carnarfon Colliery was shown as a group of four or five buildings. Only the engine house chimney is visible today. A tramway that linked the colliery to the Llanelli Railway was added in the mid 19th century on the site of a former canal, and survives as a low, very overgrown earthwork, marking the northern site boundary.

The network of ditches and reedbeds provide ideal water vole habitat, and where the habitat is suitable, signs abound. However, the interest is wider than this – otters visit the site occasionally, and polecats are also present. Water rails have been noted as present during the breeding season, though there are no confirmed records of breeding, and numbers are further bolstered over the winter period. Reed, sedge and Cetti's warblers are all well established and breeding on the site. There is a rich dragonfly and damselfly assemblage, including hairy dragonfly *Brachytron pratense*, for which the management of watercourses to maintain open water with lush fringing and floating vegetation is important. Its 'brownfield' flora is also of interest.

One rather unusual inhabitant is the woodlouse *Oritoniscus flavus*. About the same size as the common woodlouse and purple-brown in colour, it occurs in waterlogged areas under piles of debris and woody trash; it was previously thought to be confined to Ireland, where it is locally common. Given that this area was saltmarsh until circa 1810, it is possible that it came in with ship's ballast from old coal shipping points nearby.

Pressures and positive management

The principal threats to water voles at a UK level stem from habitat loss, degradation and fragmentation, and from predation by American mink and other native predators such as cats and foxes. This holds equally true for both the Llanelli population and the Morfa Berwig site. Its position adjacent to the Wildfowl and Wetlands Trust centre at

Isabel Macho

Penclacwydd, recently notified as one of 16 Key Sites in the UK for water voles, should be beneficial to population stability, although the entire area is criss-crossed by infrastructure including railway lines and link roads. Each brings it own culvert and potential barrier to dispersal.

Ambitious regeneration projects are transforming the coastline, with a thousand new homes to be built along Llanelli's waterfront in a plan to attract £200m private investment to the town. The area has been re-branded Llanelli Waterside in a move to follow Swansea's docklands and the Cardiff Bay developments.

The two legs of the main drain that traverse the site are designated as main river and therefore come under the maintenance of the EAW, who have carried out valuable habitat management on the site after a number of years of neglect. Once well-used water vole habitat, it had become overgrown and shaded by blackthorn scrub and bramble with resultant die-back of marginal vegetation. It is now being restored. Alder and willow are being cut and treated. Woody material has been chipped into large piles set back from the bank top in the hope that they might provide incubation sites for grass snake, which are frequently recorded in the area. Within weeks, iris, common reed and sweet-grass started to emerge within the channel and along the bank edge, as sunlight poured in.

Through a tenancy agreement, ponies are grazing a parcel of land at the eastern end of the site. They were doing a great job at preventing the surrounding grassland from going rank, but were also manicuring the adjacent bank side. CCW grant funding was used by BTCV to fence out a buffer strip set back from the bank top by 3-4m to encourage development of a lush riparian fringe. This has already had positive results. Water voles from a ditch adjoining this previously uninhabitable area have now recolonised the ditch and have bred this year. Our first success story and hopefully one of many to come!

Habitat works planned include further scrub control and the opening-up of a number of ponds and scrapes.

Ecological research

Mammalogists from Swansea University are studying the water vole population at Morfa Berwig. This research aims to provide information on how well the population responds to the habitat management on site and to identify hotspots of activity and refuge. They are also studying the movement of water voles and connectivity of the habitat, using live cage traps provisioned with hay and apple and distributed throughout the site. All water voles caught are sexed and marked using a PIT (passive interrogation tag), which has a small transponder that can be read from a hand-held scanner. Each animal is weighed and checked for parasites, fighting injuries and signs of disease before being released at the point of capture.

Since trapping commenced in May this year, a total of 17 water voles have been tagged and released. Many of the animals caught have been juvenile and sub-adult animals, indicating that on-site breeding is occurring. Most of the voles have been caught in a densely packed reedbed that covers a central area of the site and occurs at a major junction between several ditches. Cutting back the heavily overgrown ditch-side vegetation here should now assist the expansion of the population.

Population isolation is a serious threat to the medium to long-term persistence of water vole populations. So far no movement of marked animals has been

recorded between the Morfa Berwig population and neighbouring colonies in the adjacent National Wetlands Centre Wales. Management may be required to create a network of viable corridors between the local populations to promote immigration and emigration between populations.

Community involvement

A key element to the project is to foster community interest in the site. Unfortunately it has been regularly fly-tipped in recent years, leading to a negative perception of its value. Links have been made with the local primary school, and Keep Wales Tidy have arranged a series of litter picking events. BTCV have also run workshops with local school children at the adjacent Wildfowl and Wetlands site. It is hoped that the creation of a formal walk through the site will further improve local people's perception and understanding of the value of the habitat, and encourage a sense of local ownership.

The site is zoned for development, and one of the provisos of allowing positive conservation management to be undertaken was that it should not be at the expense of any planned development. Should the group have pushed for the site to be removed from the emerging Local Development Plan and managed for its conservation interest as a local nature reserve? If so, who would bear the costs of this management? Any development will fundamentally alter the existing character of the site but, if done properly, water voles could benefit from an appropriately constructed and managed scheme. Retention of the existing ditches, augmented by Sustainable Urban Drainage systems to manage surface water run-off, and appropriate landscaping would be a positive gain.

Imaginatively managed, the site should benefit water voles and the local community, providing sustainable employment in attractive surroundings. To that end, landscape architects have been retained to produce an 'alternative vision' for the site as a basis for influencing the end use.

Watch this space ....!

Mike Jenkins *is Technical Specialist, Biodiversity, at the Environment Agency Wales,and is currently on secondment as Senior Conservation Officer at the Countryside Council for Wales,* ***Dan Forman*** *is Zoology Tutor at the Institute of Environmental Sustainability, Swansea University, and* ***Isabel Macho*** *is Biodiversity Officer for Carmarthenshire County Council.*

Aerial photo p11: © This orthophotography has been produced by COWI A/S from digital photography captured by them in 2006. Licensed by the Welsh Assembly Government's Department for Environment, Planning and Countryside. © Mae'r orthoffotograffi hon wedi ei chynhyrchu gan COWI A/S o ffotograffiaeth ddigidol a gymerwyd ganddynt yn 2006. Wedi'u trwyddedu gan Adran Amgylchedd, Cynllunio a Chefn Gwlad Llywodraeth Cynulliad Cymru."

Llygod pengrwn Llanelli

Un o'r ardaloedd pwysicaf ar gyfer llygod pengrwn y dŵr yn Sir Gaerfyrddin yw'r tir pori isel arfordirol i'r de-ddwyrain o Lanelli. Yn y 19eg G roedd yr ardal ddwywaith ei maint presennol. Mae'n dal i grebachu oherwydd pwysau datblygu. Mae'n safle cyfoethog o ran hanes ac archeoleg ac mae'r ffosydd a'r gwelyau cyrs yn bwysig hefyd ar gyfer dyfrgwn, rhegen y dŵr, teloriaid, gwesynnod a mursennod. Canolbwyntiodd prosiect Morfa Berwig ar safle datblygiad (14.5 ha) dan berchnogaeth y Cyngor Sir. Mae diflaniad a dirywiad cynefin a phresenoldeb mincod ac ysglyfaethwyr eraill yn fygythiad i lygod pengrwn Morfa Berwig. Mae'r rhwydwaith o lonydd a rheilffyrdd hefyd yn creu drysfa o beryglon ac yn atal poblogaethau rhag symud a chymysgu.

Gydag arian nawdd, cliriwyd llwyni ar hyd ffosydd addas a ffensiwyd banciau er mwyn annog tyfiant cyfoethog. Mae ymchwil ar y gweill i ddeall mwy am arferion y llygod a'u hymateb i reolaeth cynefin. Maen nhw eisoes wedi symud i'r cynefinoedd newydd, ond efallai bydd angen creu gwell coridorau rhwng poblogaethau lleol. Rhoddwyd amod ar y gwaith cadwraeth - nid oedd i ddigwydd ar draul datblygiad. A ddylai'r grŵp fod wedi ceisio eithrio'r safle o'r Cynllun Unedol a'i droi'n warchodfa natur leol? Ond pwy wedyn fyddai'n talu am y gwaith? Mae'n bosib y gallai datblygiad gofalus fod yn fuddiol i'r llygod pengrwn - ac i'r tirlun a'r cymunedau lleol.

Jeremy Moore/CCW

Thinking BIG

conservation at a landscape scale

Dyfi Estuary

There was a time when the conservation of nature was all about safeguarding little bits of dwindling habitat. Now the thinking in official conservation circles has got more ambitious. The hard bit is translating this into real gains for wildlife on the ground. ***NICK THOMAS*** *describes some of the projects which could bring big benefits for people, landscapes and wildlife, if the resources can be found.*

Landscape-scale projects are the new 'big' idea in UK conservation. Global warming, agricultural change, the invasion of alien species and urban expansion are the main factors causing continued fragmentation, deterioration and loss of habitats and the decline of formerly widespread species.

To tackle these problems we need to think big. Big in terms of the areas that need to be protected or restored and big in terms of the issues that we need to address. This is the thinking behind landscape-scale projects and although it's a concept that has been around for years, many conservation organisations now see these as the way ahead.

So what exactly are landscape-scale projects?

Their defining characteristic is the scale at which they operate. Typically they focus on a coherent geographical area, for example a river valley or an upland block, although they vary in size from hundreds to tens of thousands of hectares. They are focused on designated sites, normally Sites of Special Scientific Interest (SSSI), but will usually extend well beyond such areas.

They aim to protect and restore the landscapes, habitats and species of these areas. Habitat restoration is a key element, but supporting or restoring traditional land management practices is often important. Other benefits include improving access and interpretation, and realising the economic potential of the environment by encouraging sustainable farming, wildlife-related tourism and environmentally friendly food production. Carbon sequestration and flood management are likely to become increasingly important elements of these projects in the future, as efforts to mitigate and adapt to climate change intensify.

Finding a way to engage positively with local communities is vital for long-term success, but can of course be fraught with difficulties.

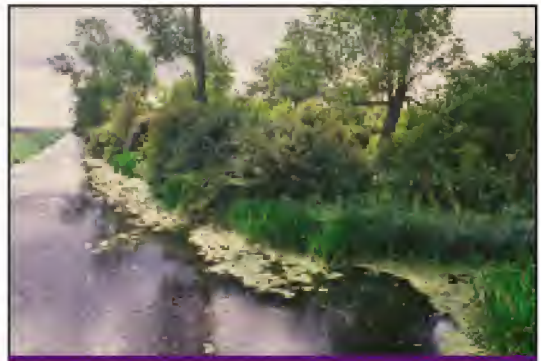
The limitations of existing protected sites

There are now over a thousand SSSIs in Wales covering over 12% of the country. The notification of these sites has been crucial in protecting a huge range of habitats and wildlife. Many once similar areas adjoining SSSIs have been ploughed, planted or built on. Wales would be a poorer country without SSSIs.

Many protected sites struggle to maintain the species and in some cases the habitats for which they were notified, because of their small size. Landscape-scale projects, by increasing habitat size and quality, restore the ecological functions that enable habitats to survive and provide specialist species with the opportunity to increase and move, which will be crucial as climate change starts to bite.

UK landscape-scale projects

Initiatives elsewhere in the UK include a number of projects in England which have developed out of a programme of 'opportunity mapping' supported by Natural England (formerly English Nature) and the Countryside Agency. These maps focused on counties or districts and identified opportunities to restore or expand semi-natural habitats. The Wildlife Trusts and the National Trust have been particularly prominent in taking forward these projects (see Living Landscapes published by Wildlife Trust in 2006), with the Great Fen Project (see box) being of particular note. In Scotland, the John Muir Trust has bought a number of Highland Estates with a view to creating wilderness areas.



Peter Wakely/Natural England

Woodwalton Fen

Great Fen Project

This exciting and ambitious project aims to restore 3,700ha of fenland from arable land between Huntingdon and Peterborough, connecting Holme Fen National Nature Reserve (NNR) with Woodwalton Fen NNR, safeguarding isolated and diminishing fen species and habitats. The re-establishment of such a large area of fen will also provide opportunities for quiet recreation and the development of tourist-related businesses. Over £6.7million has been raised or committed to this project, with a further £11 million needed over the next five years.

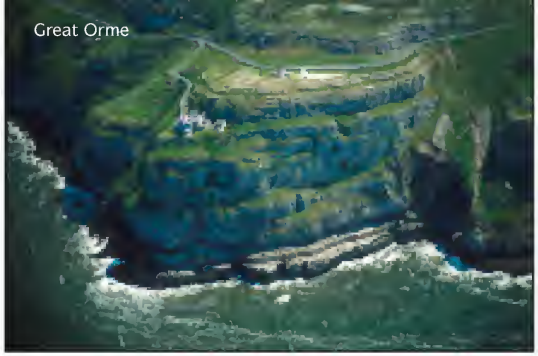
CCW's landscape-scale projects

Our work falls into two broad categories, Integrated Rural Development Projects and Habitat Restoration Projects.

Integrated Rural Development Projects

These aim to safeguard the natural heritage by integrating environmental objectives with other rural policies, cutting across sectoral boundaries, and working with communities. Three are in progress:

The *Heads of the Valleys Project* is an Assembly run regeneration project aiming to improve the natural, cultural and economic environment in the Heads of the Valleys area. CCW have seconded an officer to the programme team to help with the environmental



Paul Brazier©JNCC

aspects of the 15-year strategy, particularly the implementation of five £1 million environmental improvement schemes in the first two years.

The *Dyfi Biosphere Project* is based around Wales' only Biosphere Reserve, the Dyfi Estuary and nearby Cors Fochno, which received this accolade from UNESCO. CCW along with other partners (notably Ecodyfi) are investigating how we can work with local communities in the whole of the Dyfi catchment to develop the Biosphere Reserve concept for the social, economic and environmental benefit of the area.

The project *Making the Most of the Coast* is designed to achieve more effective integrated management of the maritime area from the Menai Strait to the Orme's Head in Conwy Bay.

Habitat Restoration Projects

Ecological Connectivity (see *Natur Cymru* 22:33-35) is a concept being developed by CCW at present. It aims to improve the composition and quality of land around and between the most important wildlife sites in Wales, to expand habitats, and to enable wildlife to move and survive climate change. Most Habitat Restoration Projects are still at an embryonic stage and will need time and substantial amounts of money to develop, but a few are up and running. Here are some examples:

The *Berwyn-Migneint LIFE Project* is a five year, RSPB-led project, with support from CCW, EAW, and Forestry Commission Wales (FCW), which was successful in bidding for £2million of EU LIFE funding in 2006, with partners contributing a further £750,000. An account of this project appears elsewhere in the magazine (see pp 27-31).

Making the most of the coast - from Anglesey and Puffin Island on the left towards the Great Orme on the right

Paul Brazier©JNCC

Horses 4 Corsydd: the Llŷn and Môn fens offer a good example of the problems facing protected sites. These Special Areas of Conservation (SAC) sit in the fairly intensively farmed, shallow valleys of Llŷn and Anglesey. They are becoming more isolated and in some cases are deteriorating because of drainage of surrounding land and lack of grazing. Horses 4 Corsydd is a partnership project being developed by CCW, North Wales Wildlife Trust, Anglesey County Council and the Environment Agency Wales (EAW), that aims to work with landowners to:

- clear scrub and get the fens grazed;
- tackle nutrient enrichment problems in the catchment;
- control water levels on the fens and restore former areas of fen by ditch blocking - this may involve agreements with surrounding landowners or in some cases land purchase;
- improve access for the public;
- get local communities and especially schools out on to the fens.

In addition to protecting species such as southern damselfly, marsh fritillary butterfly and water vole, this project could help improve fisheries and the quality of drinking water, reduce flooding in surrounding areas and, by re-wetting areas of peat, help sequester carbon. The project is currently seeking funding to make these ideas a reality.

The *Carmarthen Bay Sand Dune Restoration* project, involving Carmarthen County Council, the MoD and CCW, aims to tackle the problem of sea buckthorn invasion along this area of coast, restore grazing to the sand dunes and restore dune slacks. A conservation warden has been appointed to manage this work. Already 75ha of dunes have been fenced to enable grazing to be reintroduced.

Wildlife Trusts Wales, CCW, FCW, EAW, John Muir Trust and the Wildlands Network are developing a project with *Pumlumon* acting as the core zone. Buffer and transition zones have also been identified, which have extended the project area to some 35,000ha. The project aims to:

- build capacity within rural communities to ensure the future of sustainable hill farming;
- provide appropriate mechanisms to enhance,

expand and reconnect natural, upland habitat features and the wildlife they support;
- actively promote the cultural links between farming, wildlife, local communities and commercial enterprise and the combined opportunities they provide;
- advance the education of the public and local communities, emphasising the important relationships between sustainable upland hill farming and wildlife conservation;
- provide advice, means and support for local people to implement innovative and sustainable projects;
- widely promote the natural beauty and cultural heritage of the area and encourage innovative tourism, recreation and farm diversification opportunities.

Project officers are in place and in the near future they will be seeking external funding to make this vision a reality.

Over the last decade it has become apparent that *Tonyrefail Rhos pasture* supports a substantial population of the rapidly declining marsh fritillary butterfly. Butterfly Conservation Trust, CCW, Rhondda Cynon Taf Borough Council and the Assembly's Department for Enterprise, Innovation and Networks have developed a partnership that aims to work with landowners to protect and enhance the Rhos pasture and hence the butterfly population of this area. It is hoped that the project will contribute to economic regeneration, by enhancing the image of Tonyrefail.

The future

In Wales, landscape-scale projects are at an early stage of development. However, they offer major opportunities to address a wide range of environmental, social and economic issues. For individual projects to succeed the following are essential:
- a strong partnership;
- the support of the local community;
- employment of a project officer at an early stage, who will then have the time to develop the project;
- external funding – funding from sources such as the EU, Heritage Lottery, Aggregates or Landfill tax is crucial if these large projects are to succeed;
- time - engaging with local communities, building new partnerships and seeking external funding all take time if they are to succeed.

These are exciting projects, with the potential to make a big difference to the landscapes, wildlife and people of Wales. Let's hope they secure the political and financial support they need.

Nick Thomas *is Countryside Council for Wales North Region Operations Coordinator, and leads on CCW's programme of Habitat Restoration Projects.*

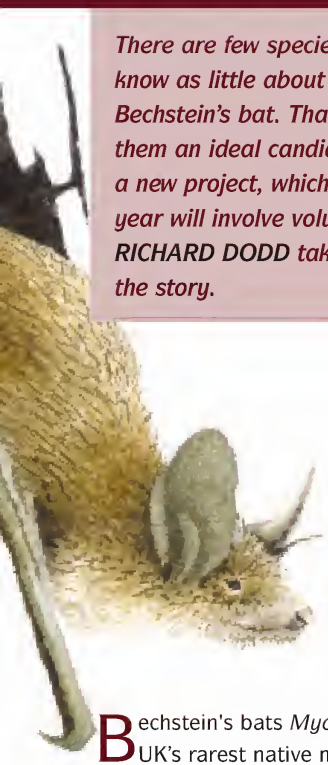
Gweithio tu hwnt i ffiniau

Ar hyd a lled Prydain mae sawl prosiect ar y gweill i wella cyflwr cynefinoedd a thirluniau ar raddfa eang. Parhau i ddirywio a diflannu y mae ein bywyd gwyllt, a sylweddolwyd ers tro bod rhaid gweithio y tu hwnt i ffiniau safleoedd dynodedig, os am sicrhau canlyniadau amgylcheddol gwerth chweil. Yma, yng Nghymru, mae nifer o brosiectau uchelgeisiol wrthi'n cael eu datblygu a'u gweithredu - fel y prosiect ar gyfer brith y gors ar Rosydd Tonyrefail, a phrosiect Pumlumon sy'n anelu at warchod cynefinoedd, diwylliant a chymunedau ucheldirol yng nghanolbarth Cymru.

Adfer cynefinoedd yw'r man cychwyn i rai o'r prosiectau hyn, tra bod eraill wedi cychwyn gyda'r nod o fod yn esiamplau da o ddatblygiad gwledig sy'n integreiddio gwahanol anghenion. Beth bynnag fo'u tarddiad a'u prif nod, mae sawl nodwedd yn gyffredin iddyn nhw i gyd. Anelu at sicrhau canlyniadau amgylcheddol da yw un -boed yn gynefinoedd mwy o faint a chyfoethocach, neu'n dir sy'n cloi carbon ac yn atal llifogydd yn fwy llwyddiannus. Elfennau tebyg eraill yw'r angen i weithio mewn partneriaeth ac i gynnwys cymunedau lleol wrth ddatblygu'r prosiectau, yr angen i blethu ystyriaethau diwylliannol ac addysgiadol wrth gynllunio gwaith a'r awydd i ddangos bod yr amgylchedd yn ffynhonnell o gyfoeth economaidd a ffyniant cymdeithasol. Mae'n ddyddiau cynnar yn hanes y prosiectau hyn. Yn ddiau, fe fyddant yn gostus ond gallent hefyd fod yn gynhyrfus a gwerthfawr iawn.

Bechstein's bats
putting them on the map

There are few species we know as little about as Bechstein's bat. That makes them an ideal candidate for a new project, which next year will involve volunteers. ***RICHARD DODD*** *takes up the story.*



Hugh Clark / Bat Conservation Trust

Bechstein's bats on moss

Bechstein's bats *Myotis bechsteinii* are one of the UK's rarest native mammals. They are currently known to occur within many of the southern counties of England from Kent to Cornwall and as far north as Shropshire. They are however absent from Scotland and Northern Ireland and have only been recorded in Wales infrequently.

Although a few individuals are found in underground sites during hibernation, most individuals roost in trees all year round. Their favoured roost sites are old woodpeckers' holes. These are used as maternity roosts and also by solitary males. The Vincent Wildlife Trust has established a bat box scheme in areas where Bechstein's bats occur, or might possibly occur[1].

Evidence from the fossil record suggests this species was probably more common over 2,000 years ago, before Britain's woodlands were cleared for agriculture. It is of little surprise, therefore, that our modern agricultural and forestry practices have greatly increased the threat of extinction to this woodland specialist.

The elusive bat

Bechstein's bats are medium-sized with long, broad ears that help when feeding on 'noisy' arthropods including moths, crickets, harvestmen, earwigs, ground beetles and spiders; the bats often glean these insects off vegetation. They emerge late from roosting sites, approximately 25-30 minutes after sunset, and set off in pursuit of their prey. They deploy a gleaning foraging strategy when hunting, flying relatively low and selectively picking prey from

the ground or within the canopy.

The mating season, as with all bat species within the UK, occurs between autumn and spring; nursery roosts are occupied from the end of April/May, and births occur towards the end of June. One young is usually produced, which is able to fly by mid August.

JJ Kaczanow/BCT

Hugh Clark / Bat Conservation Trust

Bechstein's roost hole

This is an extremely elusive species. The bats are woodland specialists, rarely found outside the cover of a woodland canopy or hedgerow. They emit very quiet echolocation calls, making them difficult to detect. Even if you do manage to record a likely suspect, it is problematic to distinguish the bat sonogram from that produced by the four other *Myotis* species across Wales (Daubenton's, Natterer's, Brandt's and whiskered bats). Finally, they employ their ability to detect fine detail by frequently evading capture from licensed surveyors using nets and traps[2].

Conservation conundrum

So how does one, faced with the rarity of this species and the difficulties associated with finding out about it, address the threats which it may be facing, and may be threatening its last pieces of habitat?

Technology has come to the rescue. Recent developments in bio-acoustics led David Hill and Frank Greenaway from the University of Sussex to conduct field experiments using a bat call synthesizer[3]. The synthesizer, or Autobat, is an acoustic lure which replicates social calls from the Bechstein's bat. The successful field experiments validated the Autobat as an effective survey tool for increasing capture rates for species like Bechstein's bats.

Hill and Greenaway have continued the success of their work with the Autobat and established much of our knowledge on the distribution of Bechstein's bat in southern England. Their fixed survey protocol has produced baseline distribution data, and provides the opportunity for future surveillance. Their work has clearly demonstrated that conducting rapid systematic surveys for Bechstein's bat is feasible at a regional scale. So what about Wales? Are there ndividuals, populations even, of this rare native mammal we may simply not be aware of? Well, probably yes, and thanks to a recent funding application to the Species Challenge Fund we are now in a position to investigate this possibility.

The Bechstein's Bat Survey Project

With the development of the Autobat and the confidence of a robust surveillance methodology, the Bat Conservation Trust (BCT) submitted applications for a collaborative survey project, with the overall aim of establishing baseline distribution data across the bat's entire range in southern England and Wales.

The project objectives are to:

- deliver systematically acquired baseline distribution data for Bechstein's bat across its entire range in southern England and Wales;
- better delineate the species'range and identify hotspots for conservation action;
- better understand the habitat associations of the species across its range;
- provide conservation management guidelines for land owners and managers of sites where Bechstein's bats are present;
- provide a baseline against which ongoing presence/absence of the species in 10km squares can be monitored for future BAP reporting and conservation status assessments;
- provide preliminary data on the distribution of other woodland bat species in relation to woodland quality by recording all other species caught during the surveys. This will provide a

valuable foundation for a comprehensive study of the relationship between woodland quality and the structure and diversity of bat communities.

The first phase of the project began in September 2007. The first task was to identify suitable sites to survey and approach landowners for access permission. Identification of suitable woodland habitat will be based on woodland size, structure, species composition and a range of other ecological factors. There will also be scope to develop our standard survey forms, protocols and training materials for our eager volunteers, and to identify key training needs.

The second, hands-on part of the project will of course be the most interesting part for our volunteers. BCT aims to recruit experienced volunteers, based on their bat handling expertise, to undertake the survey work during this phase. Volunteers will then be trained in the standard methodology to assist in the identification of suitable woodland habitat, using the Autobat. In Wales this is planned to begin in April 2008.

We hope to be able to report our early findings sometime next year. This should reveal where our Bechstein's bats are and allow us to provide targeted habitat management advice for land managers. I intend to keep readers posted!

This is truly an exciting time to be involved with bat conservation and I do feel privileged to play some part. Rarely do we get an opportunity to be up close and personal with such a rare and threatened species as the Bechstein's bat.

We are extremely grateful to the Countryside Council for Wales' Species Challenge Fund and Forestry Commission Wales. Collaborative projects such as the Bechstein's Survey Project would not be possible without their support. We are equally indebted to both David Hill and Frank Greenaway, for providing their time and expertise for free to the project.

***Richard Dodd** is Welsh Bat Officer at the Bat Conservation Trust, the only UK organisation solely devoted to the conservation of bats and their habitats.*

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John Altringham/BCT

Gofalu am y Gorgorsydd

Creaduriaid prin a dirgel yw ystlumod Bechstein. Ychydig iawn o gofnodion sydd ohonynt yng Nghymru. Coedwigoedd yw eu cynefin pennaf, ac maen nhw'n hoff iawn o glwydo mewn tyllau concellod. Ond oni bai am ddatblygiad teclynnau newydd fel yr 'Autobat', byddai'n anodd iawn dysgu mwy amdanynt. Abwyd acwstig yw'r 'Autobat'. Mae'n denu ystlumod Bechstein drwy efelychu eu galwadau cymdeithasol. Bwriedir ei ddefnyddio eleni mewn arolwg i sefydlu dosbarthiad ystlumod Bechstein yn ne Lloegr ac yng Nghymru. Bydd y gwaith hwn yn dangos pa ardaloedd sy'n bwysig ar eu cyfer ac yn helpu adnabod y mannau hynny lle mae angen gwaith cadwraeth pwrpasol. Bydd cyfle i wirfoddolwyr gymryd rhan yn yr arolwg, a derbyn hyfforddiant, ac fe gaiff canllawiau eu cynhyrchu fel y gall deiliaid tir roi cymorth ymarferol i'r creaduriaid arbennig hyn yn y dyfodol.

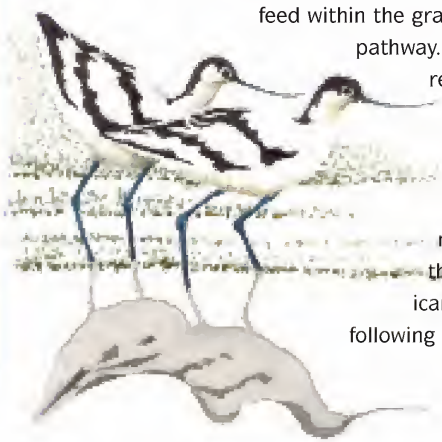
Matthew Cook/RSPB

Newport wetlands
introducing people to nature

View of the reed beds from the hide

In its short life, the Newport Wetlands Reserve has already provided two great 'firsts' in Wales, the first breeding avocets (NC 8:17) and the first breeding bearded tits (NC17:32). Here ***DAVID TROTMAN*** *reports on plans for a major new Environmental Education and Visitor Centre, and a rare warbler adds its own endorsement of this newly formed ornithological Mecca.*

It is mid September and I am walking amongst rapidly maturing reed beds at Newport Wetlands Reserve. A juvenile and a female peregrine falcon are flying across the Wetlands' western foreshore. At a point where the River Usk meets the Bristol Channel, an excited lone bird watcher asks my colleagues and me to validate a sighting.



Right on queue, the bird in question flits out of the reeds to feed within the grass border of the shingle pathway. This was the Reserve's first record of the presence of an aquatic warbler, a rare sighting by UK standards, even rarer for Wales. As ever within birder circles the news travelled rapidly, and the Wetlands received a significant increase in visitors over the following days.

The area which is now the Newport Wetlands reserve was provided by the then Cardiff Bay Development Corporation in compensation for the destruction of the Taf/Ely Estuary SSSI and Cardiff Bay mudflats during construction of the Cardiff Bay Barrage Development.

Since the beginning of its development in 2000, the 439ha site has not disappointed people with an interest in natural history. In the last four years avocet and bearded tit have bred successfully here, for the first time in Wales. Today a total of 207 different bird species have been recorded on the site, including little egret, lapwing, curlew, shoveler and gadwall to name a few, with recent sightings of the rare bittern and marsh harrier being reported as the reserve matures.

Much work has been done by the Countryside Council for Wales (CCW) to convert former storage lagoons (for the local power station's waste pulverised fuel ash) and surrounding agricultural land into three main habitat zones.

The first and most westerly zone, the Uskmouth spent fuel ash site, has been converted to 22.25 hectares of reed swamp habitat, with the reserve supporting a total of 50.25 hectares of this extremely rare habitat, which equates to 3% of the UK's Biodiversity Action Plan (BAP) target. Bittern, marsh harrier, water rail, Cetti's warbler and bearded tit have all been recorded at this end of the reserve.

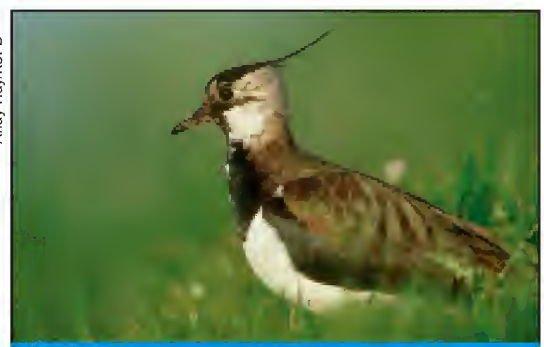
Public access to nature

In order to attract people, pathways, pontoons and viewing screens have been constructed to encourage access for visitors of all ages. This is the highest part of the whole site, with spectacular views across the Severn Estuary towards the islands of Steep Holm and Flat Holm in the Bristol Channel. At low tide where the foreshore area meets the reserve's sea wall, visitors can see many species of seabirds and estuarine waders.

The central section of the reserve consists of over 150 hectares of lowland wet grassland and is the most important area for breeding birds. Currently access by the public within this area is restricted. However, this habitat is typical of the local landscape and adds to the tranquil and peaceful atmosphere of the site, which is all the more remarkable as it is on the outskirts of a major industrial conurbation.

The final and most easterly section of the reserve, near to the village of Goldcliff, boasts three newly created saline lagoons; the development of 11 hectares of this rare habitat represents 10% of the UK's total target for this habitat. Viewing platforms have been constructed to allow visitors to see large numbers of breeding waders, including the first record of breeding avocet. Although only seven years old, this area has been successful in attracting significant numbers of lapwing, and is now one of the best breeding areas in Wales for this species.

Besides bird watching, the maturing habitats are attracting an increasingly varied and abundant flora and fauna, from dragonflies and butterflies to



Andy Hay/RSPB

Lapwing

orchids, otter and hare. In doing so, it is attracting a wide range of people with diverse interests in natural history. A frequently heard visitor's comment about the environment and wildlife is that 'Newport Wetlands Reserve never disappoints'.

RSPB

The vision for the Wetlands was to create a wildlife spectacle for people, a spectacle that is lacking in this corner of south east Wales; indeed, one that is incorporated within Newport's growing urban development.

Centre of excellence

Unsurprisingly, the reserve is gaining in popularity. Since 2004, visitor numbers from the immediate locality and further afield have increased from 11,000 to 18,000 in 2006. In order to address this growing visitor need, CCW with Newport City Council have entered into partnership with The Royal Society for the Protection of Birds (RSPB). To maximise the potential of the reserve, the partnership is developing a class-leading Environmental Education and Visitor Centre. The building will include examples of best environmental practice, with the cafeteria and retail areas sourcing materials locally and ensuring that, where possible, organic and fair trade products are sold.

The Centre, due to open to the public in mid February 2008, will establish the reserve as an exemplar site for integrated wildlife and people management. It aims to maximise the potential for people of all ages and backgrounds to enjoy and learn about nature. It also aims to establish the reserve as a major environmental education centre by serving as a venue for professional training in conservation and life-long learning for sustainable development. Local communities will be able to get

RSPB

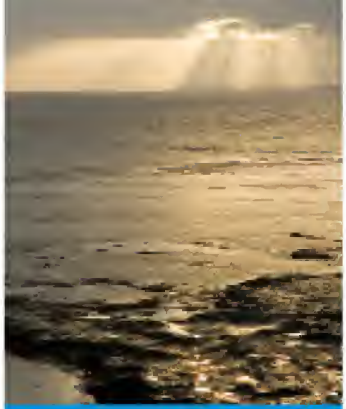
An artist's impression of the proposed new Environmental Education and Visitor Centre

involved with the day to day operation of the Centre. With its immediate environs and the greater reserve, this facility will become a major nature attraction for regional, national and international tourism.

Grant aid has been obtained from Welsh European Objective 2 funding coupled with funding from Newport City Council's allocation of the Assembly Government's Local Regeneration Fund, as well as the Council's landfill communities fund scheme.

Additional grants have been provided by the former Wales Tourist Board, (now VisitWales), CCW and direct investment from the RSPB; over £3 million has been raised to design and construct this Centre.

Such is the interest shown by the neighbouring villages of Nash, Goldcliff and the wider population of Newport that local business are now involving themselves in the long-term sustainability of the



Matthew Cook/RSPB

Cynnwrf yng Nghasnewydd

Pan ddinistriwyd arfordir lleidiog Taf/Elai fel rhan o ddatblygiad Bae Caerdydd, crëwyd gwarchodfa Gwlypdir Casnewydd fel iawndal am y golled. Ers ei chreu, datblygodd i fod yn safle arbennig ar gyfer bywyd gwyllt. Ymhlith y 207 math o aderyn a gofnodwyd yma mae'r crëyr bach, y gylfinir, yr hwyaden lydanbig a'r hwyaden lwyd. Denwyd adar y bwn, bod y gwerni a theloriaid Cetti i'r gwelyau cyrs newydd ac mae'r cambig bellach yn nythu yn y lagwnau hallt. Mae'r lagwnau hyn hefyd yn un o'r safleoedd nythu gorau yng Nghymru ar gyfer cornchwiglod ac mae'r 150ha o laswelltir llaith yn gynefin pwysig arall i'r adar gwlypdirol. Crëwyd llwybrau a mannau gwylio er mwyn i bobl o bob oedran fwynhau'r adar a'r golygfeydd dros aber yr Hafren. Mae nifer yr ymwelwyr ar gynnydd ac oherwydd hyn bwriedir codi canolfan addysg ac ymwelwyr a fydd yn enghraifft o ymarfer amgylched-dol da. Bydd cyfle i gymunedau lleol chwarae rhan mewn gweithgareddau dyddiol yn y ganolfan a'r nod yw datblygu'r warchodfa hon yn atyniad byd natur allweddol i ymwelwyr o bell ac agos.

Avocet

Chris Gomersall/RSPB

project. Carron Energy, based at the Reserve's neighbouring Uskmouth power station facility, have donated £70,000 towards equipment and materials to support Lifelong Learning work and interpretation over the next three years. Environment Agency Wales and the Crown Estate have also contributed to Phase II developments.

Given the prediction of an annual level of 40,000 people or more visiting the Centre and Reserve by 2010, its lifelong learning and training remit and the new jobs it is creating, the reserve will bring a significant boost to Newport's economy. The site is being hailed as a major nature tourist attraction for Newport, and with an estimated 1.4 million people living within a radius of 25 kilometres, the potential and opportunities in directing people' attention to nature and the challenges the environment faces are indeed great.

The challenges are many. One is to ensure that visitors of all ages and backgrounds enjoy and start to understand and learn about the special and unique nature of the Newport Wetlands, and of the wider world we share. We also want people to return. Newport Wetlands will become a hub for use by community groups and a place where people can volunteer and develop their skills within a nature setting.

As we look to the future, the possible development of the Severn Barrage raises serious worries. It would have devastating direct impacts on the tidal range and hence the specialised habitats and wildlife of the Severn Estuary and the mouth of the River Usk which make up the foreshore area of the Reserve. From an aesthetic perspective the Wetlands' sea wall, the magical point at which the Bristol Channel meets the western sky between the islands of Flat Holm and Steep Holm, would also disappear forever. However, that is another story.

Dr David Trotman *is RSPB Cymru's Head of Marketing and is based at RSPB Cymru Headquarters Cardiff. His current brief includes overseeing the people engagement functions at Newport Wetlands Environmental, Education and Visitor Centre.*

Gorgors Cymru

Blanket Bogs - getting active

Andy Hay/RSPB

Hen Harrier

Grip blocking at Lake Vyrnwy

Around the world, blanket bogs and other peatlands are under severe threat from human actions. A partnership is working to reverse this trend in two important blanket bog areas in north Wales, the Migneint and Berwyn. ***MIKE MORRIS*** *reports on conservation at a landscape scale.*

A trip to the Welsh mountains can provide a day of stunning views and fantastic scenery. The chance to visit some of the UK's most beautiful countryside or to see hen harriers or peregrine falcons in their native environment is a real draw. But when you find yourself walking in the uplands, take the time to look down. If your feet are getting wet, chances are you have left the dry heathland and stumbled into the wetter blanket bog.

And I should know! The decision to wear walking boots or wellies is a tough call, especially when you spend all day out on the mountain. However, it can be the difference between being just uncomfortable, or wet and uncomfortable. I have stopped counting the number of times I have been walking along suddenly to find my leg disappearing down a metre deep drain, only to pull it out and find I'm wet up to my knee.

Sundew *Drosera spp.*

Gorgors Cymru

Sphagnum magellanicum

Gorgors Cymru

Not too bad on a sunny summer's day, but in mid winter in can be 'refreshing' to say the least. This may sound like a daft thing to do, but when the drains (or grips) are covered by heather and other vegetation it is also a very easy thing to do. I think my record must be around five grips in a day and by the second one, you start to get a little annoyed. Mind you, it still beats being in the office!

Having spent the past few years working in England's uplands helping farmers and ramblers work together with Open Access, the opportunity to help restore the Welsh uplands was an extremely enticing one. To work on a large-scale habitat restoration project in the part of Wales where my great-grandparents lived was the perfect way of getting back into conservation work.

The job gets even better when spending all day on the moor using a quad-bike to check the progress of the ditch blocking. These machines make my job a great deal easier and quicker and they leave little or no mark on the ground, though I have been known to get a bit stuck on occasion. The quad is certainly necessary when I remind myself that over the next four years I will be monitoring around 100km of grip!

So what is a blanket bog?

A blanket bog is an area of wet peatland that is fed exclusively by rainwater. The bog is normally found on areas with peat greater than 50cm deep. Peat is a waterlogged soil that is composed of compacted, partially decomposed, vegetable matter. Active blanket bog is defined as a bog that is 'still supporting a significant area of vegetation that is normally peat forming'. In the UK, blanket bog vegetation typically includes sphagnum mosses, heather *Calluna vulgaris*, cross-leaved heath *Erica tetralix*, deer grass *Trichophorum cespitosum*, and cotton grasses *Eriophorum spp*.

RSPB

Snipe

Gorgors Cymru

Golden plover

Why should we care about blanket bog?

This incredible yet rare habitat houses a unique assemblage of plant, insect and bird species. These include rare plant species such as the beautiful, insect-catching sundew *Drosera spp*. These plants, like many others, require the wet conditions the bog provides and if it dries out these plants may disappear altogether. I would be the first to admit that, whilst hurtling past in a car, blanket bog can look bleak and at times boring, but stop. Take a close look and even get down on your hands and knees. It is only then that you begin to appreciate just how much is going on down there. The variety of colours and textures is incredible, and can be as spectacular as any other habitat in the UK and beyond. This vegetation in turn supports a very wide range of terrestrial and aquatic vertebrates and invertebrates, including rare birds such as the Eurasian golden plover *Pluvialis apricaria* and snipe *Gallinago gallinago*.

Blanket bog is found in naturally high rainfall areas and so is an important aspect of the water cycle. The bog acts as a natural sponge, which holds a lot of water in the uplands. When in good condition, this water is released at a slow and steady rate, but when the bog is damaged the water is released quickly. This may cause severe lowland flooding and erosion, and even lead to drought during dry periods.

The water held within our blanket bogs is the source of much of our drinking water. When this enters our reservoirs it often contains large amounts of dissolved and particulate matter that the water companies spend millions of pounds removing before it comes out of our taps. If the bog were in good condition, it would do some of this job for us, thus saving us all money on our water bills.

Blanket bog also holds an enormous amount of carbon within its peat. It has been estimated that the carbon stored in the peatlands of the UK is greater than that stored in the forests of the UK and France combined. However, due to serious pressure from years of human activity, the plants can be so damaged that they stop gathering carbon from the atmosphere to be stored in the peat, and the peat itself dries out. This can result in the release of huge quantities of carbon that otherwise would be stored away indefinitely.

In Wales and England alone, it is believed that peatlands could capture and store around 41,000 tonnes of carbon annually if they were in pristine condition. The current damage to the peat results in 381,000 tonnes being lost to the atmosphere on an annual basis. If we could reverse this trend, it would have the effect of removing the equivalent of 230,000 cars from our roads every year! It's now got to the stage that I find it difficult to pass by damaged peat and not imagine great plumes of carbon-rich gases pouring up from its damaged surface.

Blanket bog in the UK – globally important

Due to the climatic conditions required for their formation, blanket bogs have a limited global distribution. In Europe they are found primarily in the

Peter Roworth/Natural England

Cross-leaved heath

UK and Ireland, in their cooler and damper parts. There are no agreed figures for the total area of blanket bog vegetation in Britain, but it has been estimated that 10-15% of the world's blanket bog occurs here.

In Wales, there are thought to be 70,000ha (over 170,000 acres) of blanket peat, although probably more than 10% of this no longer supports blanket bog vegetation. Unfortunately, a significant proportion of the remaining area is not likely to support active blanket bog. The Berwyn and South Clwyd Mountains Special Area of Conservation (SAC) supports the most extensive tract of near-natural blanket bog in Wales. The Migneint-Arenig-Dduallt SAC supports the second largest area after the Berwyn.

What are the threats to blanket bog?

Blanket bogs in the UK and around the world are currently under threat from many different human activities, including forestry, over-grazing, drainage, burning, pollution, peat extraction, development, erosion and recreation. The changing climate, with predicted drier summers, is itself a threat. Encroachment by non-native invasive species, such as rhododendron and Sitka spruce, is a further problem.

Blanket bog restoration

The combination of an extremely important habitat for a range of plant and animal species (active blanket bog becoming a priority habitat under the EC Habitats Directive), and the impacts damaged bog may have on water quality, flood risk, and climate change have resulted in the development of the LIFE Active Blanket Bog in Wales Project. The core aim of the project is to restore significant areas of blanket bog to favourable condition. The project is carrying out restoration work within the Berwyn & South Clwyd Mountains and Migneint-Arenig-Dduallt SACs. It began its five year programme of restoration work in August 2006, and to date 19,000m of moorland drain on the Royal Society for the Protection of Birds (RSPB) Reserve at Lake Vyrnwy have been blocked. Over the next four years, a total of 100,000m of drain will be blocked here.

The speed that the project's contractor can install the grip dams is remarkable. Each one takes around 5-10 minutes and involves peat and three bales made from local heather. Once the grip is re-profiled to fit the bales they are inserted and the peat 'spoil' is reinstated to provide extra strength to the dam. Over time, the water builds up behind the dam, and eventually fills with bog plants, in particular Sphagnum spp. The surrounding area will also benefit as the water table is raised to provide a better habitat. Both field workers and the local sheep appreciate the dams, which provide an excellent "bridge" across the unseen grip. I seem to fall over a great deal less when working in these areas!

On top of the grip blocking work the project will:

Gorgors Cymru

Bog asphodel

- remove self-seeding rhododendron and Sitka spruce from the Lake Vyrnwy reserve blanket bog;
- restore afforested blanket bog across 300ha of land managed by Forestry Commission Wales in the Migneint-Arenig-Dduallt SAC;
- seed 50ha of Berwyn SAC with heather;
- create fire control areas in both SACs;
- purchase a piece of land on the Migneint SAC with good blanket bog habitat, to conserve its fauna and flora.

We will also:

- carry out demonstration and advocacy work with local farmers and land managers to provide best practice for managing blanket bogs;
- engage in outreach work with local communities and schools;
- share information gained through vegetation and hydrological monitoring with other restoration projects across Europe.

With the increasing interest in the effect of upland management on biodiversity, water quality and carbon sequestration, collaborations such as these are essential. Close working between land managers and research institutions will provide a better understanding of the impacts of the management of the uplands upon these ecosystem services.

***Mike Morris** works for the RSPB as the LIFE Advisory Officer and Migneint Warden based at Lake Vyrnwy, Powys.*

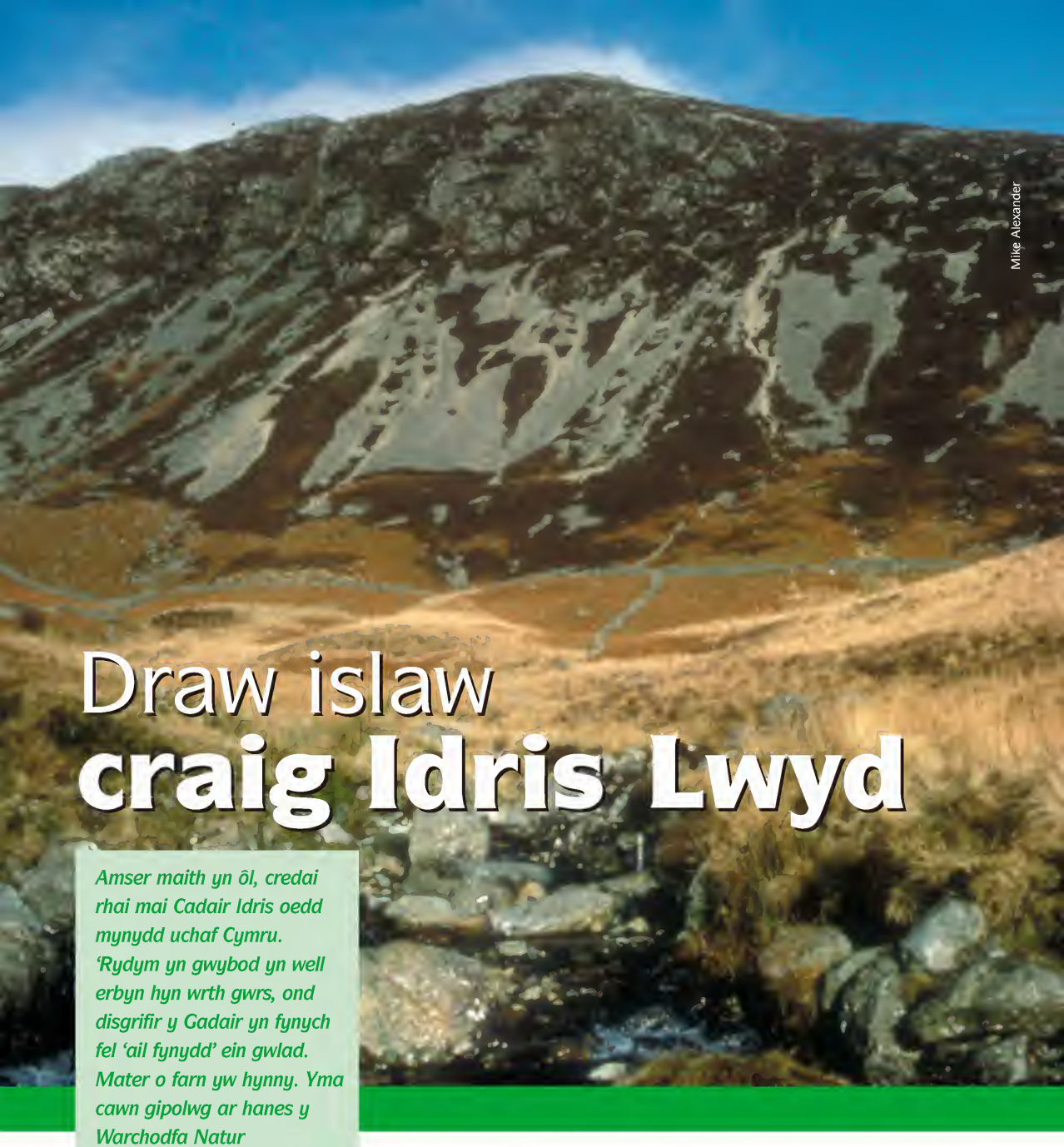
The LIFE Active Blanket Bog in Wales Project is a five year project that aims to restore significant areas of blanket bog in Wales to favourable condition. It is a partnership between the RSPB, FCW, Countryside Council for Wales, and the Environment Agency (Wales), with 75% of its £2.57m budget coming from the EU LIFE-Nature programme. For more information about the LIFE Active Blanket Bog in Wales project, contact the team via the project website **www.blanketbogswales.org**

Gofalu am y Gorgorsydd

Os mai moel a llwm yw'r ansoddeiriau y byddech chi'n eu defnyddio i ddisgrifio gorgorsydd, meddyliwch eto! Mae'r cynefin mawnog, rhyfeddol hwn yn fôr o liw, yn gartref i gasgliadau unigryw o fywyd gwyllt ac yn rhan allweddol o'r cylch dŵr.

Mae gorgorsydd yn hanfodol i ddyn a byd natur. Maen nhw'n dal llawer o'n dŵr yfed a phe baent mewn cyflwr da, byddai hwn yn cael ei hidlo'n naturiol a'i ollwng yn raddol i'n hafonydd. Maen nhw hefyd yn storfa allweddol o garbon. Ond ar hyn o bryd, oherwydd eu cyflwr presennol, gollyngir 381,000 tunnell o garbon yn flynyddol o'n mawndiroedd. Byddai gwyrdroi hyn yn gyfystyr â thynnu 230,000 car o'n ffyrdd bob blwyddyn!

Mae Prydain yn cynnal 10-15% o gynefin gorgors y byd. Mae 70,000 ha yng Nghymru yn unig. Amcan prosiect LIFE ar y Berwyn a'r Migneint yw taclo rhai o'r ffactorau sy'n achosi dirywiad gorgorsydd. Bwriedir cau 100,000 m o ffosydd gydag argaeau o fawn a grug. Y nod yw cronni'r dŵr yn y ffosydd ac annog planhigion fel migwyn i ailsefydlu, a hefyd i godi lefel y dŵr ar diroedd cyfagos er lles adar fel y cwtiad aur a'r gïach. Bydd gwaith arall yn digwydd hefyd - clirio planhigion estron fel rhododendron, ail-hadu tir gyda grug, creu gwell rheolaeth tân a rhannu gwybodaeth gyda deiliaid tir a chymunedau lleol.



Mike Alexander

Draw islaw craig Idris Lwyd

Amser maith yn ôl, credai rhai mai Cadair Idris oedd mynydd uchaf Cymru. 'Rydym yn gwybod yn well erbyn hyn wrth gwrs, ond disgrifir y Gadair yn fynych fel 'ail fynydd' ein gwlad. Mater o farn yw hynny. Yma cawn gipolwg ar hanes y Warchodfa Natur Genedlaethol a be' sy'n digwydd yno, yng nghwmni ***PAUL WILLIAMS****, a manylion ychwanegol gan* ***DION JONES*** *a* ***HELEN TENCH****.*

Yn ystod 2006, bu tua 169,000 o bobl ar Gadair Idris. Tybed faint o'r rhain ddaeth i weld y Warchodfa Natur Genedlaethol? Neu'n bwysicach, faint ohonynt aeth adre yn gwybod eu bod wedi troedio Gwarchodfa Natur Genedlaethol? Ar hyn o bryd rhaid derbyn mai 'ychydig iawn' ydi'r ateb i'r cyntaf; wedi'r cwbl, pwy all eu beio am fod eisiau cerdded neu ddringo ar y Gadair oherwydd, yn syml, 'ei bod hi yno'.

Ond dwi'n gobeithio bod canran ohonynt wedi oedi ennyd wrth ein harwyddion, a sylwi bod y lle yn fwy na chopa yn unig, neu wedi galw i mewn i'n harddangosfa yn ystod yr haf.

Warden tymhorol CCGC sy'n gyfrifol am oruchwylio'r arddangosfa ynglŷn â Chadair Idris ym mwthyn Ystradlyn wrth droed y mynydd yn ochr Talyllyn. Siomedig yw'r nifer o gerddwyr sydd yn taro i mewn, ond mae'n debyg bod bron pawb sy'n anelu am y mynydd ar dân i gychwyn ar eu taith. Anodd hefyd yw agor yr arddangosfa'n gyson bob dydd gan fod y warden tymhorol yn gweithio ystod eang iawn o weithgareddau, o ymladd Rhododendrons i fesur glawiad, monitro ystlumod, trwsio ffensys, a chynghori ymwelwyr. Ond gallai Ystradlyn fod yn adnodd gwerthfawr iawn o ran dehongli ac addysgu am y warchodfa. Mae angen cryn wario serch hynny cyn y gallwn fanteisio'n llawn ar y posibiliadau. Eisoes gwnaed gwaith er lles yr ystlumod pedol lleiaf yn yr adeilad, trwy insiwleiddio'r to a gosod system wresogi syml iawn i gadw'r tymheredd yn sefydlog. Mae'r ystlumod ar gynnydd yno bellach. Manteisiwyd ar y cyfle hefyd i osod camerâu is-goch, ac mae'r rhain yn gyrru lluniau gwych i'r ystafell wybodaeth, gan ychwanegu atyniad poblogaidd iawn i'r arddangosfa.

Sut gwyddom, medde chi, faint o bobl sy'n cerdded ar y Gadair? Amcangyfrif ydyw mewn gwirionedd; ond amcangyfrif wedi'i seilio ar dystiolaeth a gesglir yn fisol o offer arbenigol ar y rhwydwaith llwybrau. Amcangyfrifwyd ym 1975 bod 63,000 o ymwelwyr wedi bod ar Gadair Idris y flwyddyn honno, ac roedd cerdded yn dod yn fwyfwy poblogaidd bryd hynny, gyda meysydd parcio a chyfleusterau eraill yn cael eu datblygu. Ugain mlynedd yn ddiweddarach roedd cryn boeni am yr erydiad ar lwybrau ucheldir Cymru, ac ymhen hir a hwyr sefydlwyd Partneriaeth Llwybrau Ucheldir Eryri ar y cyd gan CCGC, y Parc Cenedlaethol, a'r Ymddiriedolaeth Genedlaethol i fynd i'r afael â'r difrod a wnaed gan filiynau o draed ar ein llethrau.

Gweler ysgrif Dion am fanylion y cyfri, ond yr hyn sydd ar Gadair Idris ydi cyfres o 6 teclyn ar y prif

Paul Williams

Llyn Cau

lwybrau, a'r rhain yn rhoi argraff dda iawn inni o'r niferoedd sy'n mentro i'r copa, o'i gymharu â'r nifer sy'n gadael y maes parcio.

Ers 2002 mae'r bartneriaeth llwybrau wedi adeiladu a thirlunio tua 3 km o lwybrau'r mynydd. Adeiladwyd pont hefyd dros Nant Cadair yn ystod 2006 gan fod mwy a mwy o bobl yn gwneud cylchdaith, a'r afon yn anodd iawn ei chroesi ar lif. Gan fod Cadair Idris yn safle daearegol pwysig, annoeth fyddai gorddibynu ar y llethrau sgri fel ffynhonnell deunydd creu llwybrau, felly rhaid hedfan cerrig i'r safle. Cludwyd cannoedd o dunelli gan hofrennydd yn ystod mis Hydref eleni at grib y Graig Lwyd, a bydd y tîm yn fanno, ac ar lwybr Mynydd Moel hyd ddiwedd y cynllun ym Mehefin 2008.

Dynodwyd talp helaeth o fynydd Cadair Idris yn Warchodfa Natur Genedlaethol ym 1955, dan gytundeb gyda'r perchennog Ivor Idris, ond pan werthodd o ei ystâd yn y saithdegau, prynwyd prif ardal y warchodfa, a daethpwyd i gytundebau rheoli

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CCW

Gludlys mwsoglyd *Silene acaulis* Moss Campion

CCW

David Woodfall/CCW

Suran y mynydd *Oxyria digyna* Mountain sorrel • Llus *Vaccinium myrtillus* Bilberry

ar ddwy ardal arall, gan roi cyfanswm o tua 450 hectar dan reolaeth gadwraethol. Erbyn heddiw amgylchynir y warchodfa gan dros 5000 hectar o dir a ddynodwyd yn Safle o Ddiddordeb Gwyddonol Arbennig, gan gynnwys Dyffryn Talyllyn a'i nodweddion daearegol amlwg. Ond cnewyllyn y safle yw'r warchodfa, sy'n cynnwys cwm rhewlifol clasurol Llyn Cau a chopaon gwych Penygadair, Craig Cau a Mynydd Moel.

Rhostiroedd yw prif ddiddordeb gwyddonol Cadair Idris. Mae'n nhw'n bwysig mewn cyd-destun rhyngwladol a bellach yn rhan o Ardal Cadwraeth Arbennig, a ddynodwyd dan ddeddfwriaeth Ewrop.

Ond mae yma hefyd ardaloedd o gorstir, coedwigoedd derw, llystyfiant cyfoethog y clogwyni, yn ogystal â rhestr o blanhigion a chreaduriaid a ystyrir yn werthfawr.

Mae Cadair Idris ar gyrion yr hyn a elwir heddiw yn Eryri, ac yma mae lleoliad mwyaf deheuol sawl planhigyn arctig-alpaidd, fel suran y mynydd (*Oxyria digyna*), gludlys mwsoglyd (*Silene acaulis*) a'r hesgen anystwyth (*Carex bigelowii*). Yma hefyd gwelir y gorfandadlen flewog (*Genista pilosa*) sydd yn ei lleoliad mwyaf gogleddol ym Mhrydain! Oherwydd bod dau fyd yn cwrdd yma fel hyn, dyma efallai, lle gwelwn effeithiau newid hinsawdd yn gyntaf.

Un arall o ddylanwadau dyn yw'r nitrogen sy'n disgyn o'r awyr. Mewn ecosystem sy'n naturiol dlawd iawn mewn maetholion, gall ychwanegu nitrogen roi mantais i weiriau, a hynny ar draul planhigion a chynefinoedd mynyddig. Ychydig iawn o rostir mynyddig neu 'rostir y copa' sydd ar ôl ar Gadair

Idris, a hynny oherwydd cyfuniad o sathru a phori. Mwsog' y llwydyn gwlanog (*Racomitrium lanuginosum*) a chennau byseddog (rh. *Cladonia*) yw'r planhigion mwyaf cyfarwydd yn y rhostir hwn, ac mae'r hesgen anystwyth a chnwpfwsoglau yn arbennig o amlwg mewn ambell lecyn ar Gadair Idris. Ceir yma hefyd dri math o aeron mynyddig, sef llus (*Vaccinium myrtillus*), llus coch (*V.vitis-idea*), a chreiglus (*Empetrum nigrum*), ac ambell goesyn o rug yn tyfu'n dynn ac isel yn nannedd y gwynt. Mae ôl traed miloedd o bobl yn amlwg yn cael effaith hirdymor, a gall pori (a baw defaid) ddylanwadu ar gyfansoddiad y cynefin, gyda gweiriau yn dygymod yn well.

Paul Williams

Y blanhigfa yng Nghesail Mynydd Moel - Cwm Cau i'r chwith ac Ystradlyny
The plantation on Mynydd Moel - Cwm Cau and Ystradlyny on the left

Ar hyn o bryd mae myfyriwr PhD yn cynnal ymchwil i weld a oes modd adfer rhostiroedd mynyddig sydd mewn cyflwr gwael ar gopaon Eryri. Mae'r arbrofi sy'n digwydd ar Gadair Idris yn cynnwys gosod toriadau o *Racomitrium* mewn rhwydi ar y ddaear a mesur eu gallu i 'wreiddio'. Cymer rhai blynyddoedd i ffrwyth yr ymchwil yma weld golau dydd yn llawn.

Yn y tymor hir, gobeithir ehangu'r llystyfiant arbennig yma i ardaloedd eraill o'r copaon. Mae hyn yn golygu annog cerddwyr i gadw at lwybrau penodol mewn ambell le, ond yn allweddol, mae'n golygu lleihau'r nifer o ddefaid sy'n pori'r mynydd. Pan werthwyd y tir i'r Cyngor Gwarchod Natur, gwahanwyd yr hawl pori oddi wrth y tir ei hun, a hyd heddiw, nid oes gennym reolaeth uniongyrchol ar y patrwm a'r pwysau pori ar y warchodfa! Mae trafodaethau yn parhau efo'r porwr, ond gweledigaeth tymor hir iawn sydd gennym dan sylw, a rhagwelir y bydd angen rhywfaint o bori ysgafn yno o hyd.

Ers yr wythdegau mae lleiniau bach o dir wedi'u hamgáu yn y warchodfa, er mwyn gweld pa dyfiant sy'n datblygu heb effaith pori. Cymysg fu llwyddiant y rhain, am resymau mor amrywiol a dewis gwael o safle, diffyg cynnal a chadw ffensus, a diffyg monitro ystyrlon, ond mae modd serch hynny i weld sut byddai'r tyfiant yn datblygu. Byddai gostwng y pwysau pori yn arwain yn raddol iawn at ddatblygu tyfiant mwy 'naturiol' ar y warchodfa, gyda choed a llwyni yn araf ddringo godrau'r mynydd lle mae'r amodau'n addas, hyd at lannau Llyn Cau efallai. Ar yr un pryd, efallai y gwêl ymwelwyr y dyfodol blanhigion megis y pabi Cymreig, pren y ddannoedd, a'r tormaen llydandroed yn tyfu ar lethrau isaf Cwm Cau wedi ehangu o'u clogwyni cyfyng; a'r helygen fach (*Salix herbacea*) yn mentro codi'i phen ac ymestyn o gilfachau creigiog Penygadair. Byr yw cyfnod rhywun ar y ddaear a chamgymeriad yw gwthio'n hamserlen ni ar gynefinoedd a rhywogaethau. Ni fyddwn yn plannu coed yn y cwm felly er mwyn cyflymu'r broses.

Mae gwaith ymchwil Helen Tench, o Brifysgol Aberystwyth, yn dangos bod y criafol aeddfed a gwasgaredig ar y warchodfa yn ffynonellau pwysig o hadau i greu tirlun mwy coediog yng Nghwm Cau. Bydd hefyd yn creu model cyfrifiadurol er mwyn asesu ymateb llystyfiant mynyddig i wahanol amodau pori.

Yn ogystal â hyn i gyd, mae digon o waith arall yn digwydd yma. Mae'r CCG yn berchen ar blanhigfa (tua 16ha) y drws nesa' i'r warchodfa. Planhigfa cymysg o goed llarwydd, sbriws a phîn sydd yma'n

Cyfrif Pobl *Dion Jones, Technegydd Mynediad, Awdurdod Parc Cenedlaethol Eryri.*

Yn ystod 2000, cafodd 21 teclyn cyfri pobl eu gosod ar draws Parc Cenedlaethol Eryri ar lwybrau a oedd yn disgyn o dan Bartneriaeth Llwybrau Ucheldir Eryri: wyth ar y Carneddau/Glyderau, 7 ar yr Wyddfa a 6 ar Gadair Idris. Erbyn 2006 mae'r rhain wedi eu cynyddu i 23.

Ers mis Awst 2006 mae asesiad wedi ei wneud o leoliad a holl declynnau monitro'r bartneriaeth a nodwyd nad oedd rhai o'r teclynnau gwreiddiol yn gweithio mor effeithiol ac y gallent, a hefyd yn nesáu at ddiwedd eu hoes.

Fe benderfynwyd felly i newid y rhain gydag offer newydd.

Er bod eitemau newydd Eco PC yn llawer drutach na'r hen rai o wneuthuriad Linetop maen nhw'n llawer mwy dibynadwy; ddim angen eu darllen mor aml, gyda'r gallu i ddal blwyddyn gyfan o ddata, ac yn dod gyda bywyd batri o 10 mlynedd; wedi eu selio'n llwyr felly nid ydynt yn cael eu heffeithio gan ddŵr ac mae'r data yn cael ei lwytho i fyny i PDA gyda system is-goch yn

lle defnyddio ciwbs data. Mae'r peirian-nau newydd hefyd gyda'r gallu i gyfri'r ddwy ffordd ar lwybr yn lle dim ond un fel yr hen declynnau monitro. Mae hyn yn ddefnyddiol pan mae angen gweld pa ffordd mae llwybr yn cael ei ddefnyddio e.e. cylch daith.

Dau slab i gyfri dwy ffordd ar y chwith gyda'r hen fath o slab unigol ar y dde.

Two slabs to count two ways on the left with the old type of slab on the right

Mae'r ddwy system yn gweithio mewn ffordd eithaf tebyg gyda'r ddau yn cael eu sbarduno gan naill ai synhwyrydd gwres corff mewn postyn giât neu wrth sefyll ar fad sydd wedi ei gladdu yn y ddaear. Mae'r ddwy ffordd o sbarduno fel arfer yn cael eu gosod mewn man cul (pinch point) ar lwybr fel giât, camfeydd neu adwy mewn wal. Mae hyn yn cael ei wneud i sicrhau mae dim ond un person ar y tro sy'n croesi'r pwynt mesur.

Mae un ffordd arall yn cael ei ddefnyddio i sbarduno'r 'cowntars' ar yr hen declynnau. Mae gris ffug yn cael ei gosod ar stepen gamfa gyda phad aer rhyngddynt, pan mae person yn sefyll ar y gris mae hyn yn gyrru gwynt i switsh sydd yn ei newid i signal trydanol i'r 'cowntar' ddeall.

Yr unig sgil-effaith i hyn ydi fod cerddwyr weithiau yn osgoi grisiau ac felly mae'r ffigyrau yma yn cael eu hymgodi hefo canran bychan.

Mae hefyd wedi cael ei ddarganfod wrth gladdu'r padiau yn y ddaear os ydynt yn cael eu rhoi ar 'grassblocks' plastig maent yn gweithio yn fwy effeithiol ac yn para yn hirach.

O dro i dro mae teclynnau cyfri'r Bartneriaeth yn cael eu fandaleiddio ac os ydynt yn cael eu gosod mewn ffordd hawdd i'w darganfod yn fwy tebygol o gael eu hamharu. Rwyf bellach yn archebu'r offer newydd gyda chebl 20m o hyd, sy'n galluogi cuddio'r teclyn ymhell o'r man sbarduno.

Dros y saith mlynedd diwethaf mae'r Bartneriaeth wedi casglu bas data defnyd-diol o'r nifer o ymwelwyr i lwybrau ucheldir Eryri ac wedi defnyddio'r wybodaeth yma i flaenoriaethu gwaith a hefyd fel tystiolaeth i brofi angen am y gwaith. Nid yn unig yw'r wybodaeth yma o ddefnydd i'r Bartneriaeth ond mae hefyd o fudd i adrannau a mudiadau eraill, llywodraethol neu ddim.

Mae'r wybodaeth yn aml yn cael ei rannu gyda myfyrwyr sy'n gwneud gwaith ymchwil ar lwybrau neu destun arall amgylcheddol, mae'r data yma i'w weld yn ddefnyddiol iawn er mwyn hyn.

Am fwy o wybodaeth am y math o offer sy'n cael eu defnyddio gan y Bartneriaeth gweler:
www.linetop.co.uk/ • www.eco-compteur.com/

Upland vegetation succession

Helen Tench, Institute of Rural Sciences, University of Wales Aberystwyth.

For the past three years I have been studying the regeneration of rowan (mountain ash) *Sorbus aucuparia* at Cadair Idris NNR, as a part of my PhD research. The study has focused on Cwm Cau which, like most of upland Wales, has a long history of sheep grazing. At first glance the Cwm appears to be a largely treeless landscape, but closer inspection reveals a number of mature relict trees, mainly clinging to crags and on small, inaccessible ledges. There are also a surprising number of saplings, again predominately on the steeper inaccessible ground but also some on the lower slopes within stands of heather. Most of these are stunted by repeated browsing of the leading shoot, their bonsai growth form concealing their true age, but a few eventually escape this threat and grow on towards maturity.

My study focuses on three main questions: what is the contribution of the surviving relict trees to the regeneration of the site; how far are seeds being dispersed from the parent trees; and what are the probabilities of seedling establishment in different dominant vegetation stands, for example heather, bracken or purple moor grass?

To answer these questions I have used Differential GPS to plot the location of each tree to within one metre, and recorded a range of attributes for both tree and site. DNA was extracted from leaflets from each tree. By looking for variation in small non-coding DNA fragments known as microsatellites, I have been able to determine the most likely parents of the saplings. By combining this data with the field measurements I will be able to work out the spread and dispersal from the parent trees, as well as to make some general informed assumptions about the timescales involved. Further analysis of the microsatellites might also determine the genetic variability of the Cwm Cau *Sorbus* population.

Initial results show that, in order to become established, seeds require a 'window of opportunity' free from any grazing, but that this window closes rapidly as the ground flora also responds. The type of ground flora community is also a major factor. The relict trees form an invaluable resource for woodland regeneration, with birds dispersing seed widely across the site.

It is intended that this data will also be used to inform a dynamic systems computer model, which will provide an interactive tool for users to test a range of management scenarios and assumptions over varying time scales and at differing grazing intensities.

bennaf, ond ceir hefyd rhywfaint o goed derw, criafol a bedw. Mae olion hen arboretum yr ystad i'w gweld yno o hyd, gydag enghreifftiau hyfryd o gewri coch y *Sequoiadendron giganteum* er enghraifft. Mae un arall o'r coed addurnol, sef coeden diwlips (*Liriodendron tulipifera*) gosgeiddig ar ymyl y prif lwybr at y warchodfa, yn gartref i'r cen prin, Leptogium subtile. Yn anffodus, oherwydd hollt a phydredd yn y goeden hon, roedd rhaid ei thrin rhag peryglu cerddwyr. Mae hyn wedi caniatáu i ni ymestyn oes y goeden, a byddaf yn plannu coeden diwlips newydd yn agos ati dros y gaeaf, gyda'r bwriad o gynnig ail gartref i'r *Leptogium*.

Oherwydd natur y blanhigfa, ni chafodd ei chynnwys yn y warchodfa, ac yn wir ceisiwyd ei roi i gyrff eraill yn yr wythdegau cynnar! Bellach mae'n cynnig cyfle i ni ehangu un o nodweddion statudol y safle sef coedwig dderi, sydd i'w gweld gerllaw ar lan gorllewinol Nant Cadair. Credaf fod y coed conwydd yma wedi eu plannu am resymau tirlun yn hytrach nac am resymau masnachol. Treuliodd Ivor Idris lawer o'i amser yn y Swistir ac efallai mai ceisio efelychu'r tirlun alpaidd yr oedd wrth blannu'r coed conwydd hyn; pwy a ŵyr? Plannwyd miloedd ar lethrau serth, creigiog ac nid oes arwydd bod unrhyw deneuo wedi digwydd ers y plannu, ac ni fu ymgais i glirio'r coed a loriwyd gan y gwynt. Byddai'n anodd i'w cynaeafu a'u clirio gan eu bod mor amlwg yn nhirlun dyffryn Talyllyn. Rhaid derbyn eto, felly, mai cynllun hirdymor fydd adfer y goedwig yma hefyd, ond

bydd tyfiant newydd o goed cynhenid i'w weld yn llawer cynt yn y bylchau a'r llennyrch a gaiff eu creu. Llwyddwyd i gael rhywfaint o arian o gynllun Cymhorthdal Coetir y Comisiwn Coedwigaeth ar gyfer y gwaith ac mae arian Amcan Un hefyd wedi helpu gyda thasgau fel rheoli'r Rhododendron ponticum ymledol a gwella'r terfynau.

Paul Williams

Cladonia a Racomitrium

Canolbwyntiwyd y gwaith hyd yma mewn chwe ardal fechan gan naill ai deneuo'r conwydd o ardaloedd gyda chanran rhesymol o goed derw, neu ledaenu llennyrch oedd yno eisoes. Mae'r arwyddion cynnar o ran ail-dyfiant coed cynhenid yn addawol, ac nid yw'r gwaith eto wedi achosi pryderon am ddirywiad yn 'harddwch' y tirwedd yno.

Oherwydd nad oes mynediad cyhoeddus i'r blanhigfa ar hyn o bryd, mae modd defnyddio amrywiaeth o ddulliau rheoli, gan gynnwys lladd coed ar eu traed. Mae sawl mantais i hyn, gan gynnwys y cyfle i greu pren marw sy'n dal i sefyll - sy'n gynefin mwy gwerthfawr i fywyd gwyllt fel trychfilod, adar ac ystlumod na phren ar y ddaear.

Bydd 'ail-greu' coedwig lydanddail yma yn gyfraniad pwysig i gadwraeth coedydd derw yn ucheldir Gwynedd gan ychwanegu 1% at gyfanswm yr arwynebedd yn y sir. Eto, y bwriad yw dibynnu ar dyfiant naturiol yn hytrach na phlannu.

Yn Nhanygader, ar odrau gogleddol Cadair Idris, bum yn ceisio adfer cynefinoedd eraill. Trwy ddefnyddio merlod mynydd i bori'n gymharol drwm, rheoli helyg, a chau hen ffosydd, ymddengys bod y corsydd yno'n deffro unwaith eto, ond dyna destun erthygl arall efallai. Yn y cyfamser, galwch draw i weld mynydd sydd yn fy marn i, heb ei ail.

*Mae **Paul Williams** yn gweithio fel Uwch Reolwr Gwarchodfeydd gyda Chyngor Cefn Gwlad Cymru.*

Managing a mountain

Cadair Idris must be one of the richest and most fascinating mountains in Wales. The management of this upland block, which has a National Nature Reserve at its core, is challenging and rewarding and involves caring for both people and the fabric of the mountain. The increasing popularity of Cadair Idris and the resultant erosion has led to around 3km of mountain paths being repaired over the last five years. Few visitors, unfortunately, know about the exhibition centre at Talyllyn, but at least the lesser horseshoe bats have benefitted from recent building works.

Cadair Idris is notable for its geology and wildlife. It is internationally recognised for its different tyes of heathland, including the uncommon and fragile montante heath around the summits which is suffering from trampling as well as from grazing and nitrogen deposition which favours grass growth. Current research is investigating whether transplanting vegetation could help restore and expand this habitat.

Grazing management is a challenge, particularly as the grazing rights were not sold with the land when the Nature Conservancy Council purchased the National Nature Reserve in 1955. Grazing exclosures established in the 1980s provide some indication of how the vegetation might develop if ungrazed, with shrubs gradually creeping upwards on the slopes and montane plants expanding from their current rocky refuges. But the vision of reducing grazing pressure on the mountain will have to be a long term one, and it is unlikely that Cadair Idris will ever be completely ungrazed.

Elsewhere, oak woodland is being restored, adding 1% to the total broadleaved woodland cover in Gwynedd. And on the northern edges of the mountain 10ha of bog are being restored by a combination of scrub cutting, ditch blocking and pony grazing.

Please contact us if you would like a translation of this article.

Denmark Farm

still working with people for wildlife!

Shared Earth Trust

No need to tidy everything up! Leaving wood to rot provides homes for reptiles, amphibians, birds and mammals, as well as thousands of invertebrates

Many people take it that wildlife is for the experts, and there is nothing they can do to help. This is far from the truth, as a series of projects at the Shared Earth Trust's Denmark Farm have shown. Give people and businesses the chance to heal nature, and nature will repay the compliment. ***MALCOLM MAGEE*** *describes how enthusiasm and some new projects are helping to bring local biodiversity and people together.*

One of the crucial elements of Biodiversity Action Planning across the UK is the need to gain wider public involvement. Once public awareness levels are raised, a positive 'can do' attitude can be more easily cultivated, in both urban and rural communities. This has to be one of the most vital aspects of any Local Biodiversity Action Plan (LBAP). But how do you reach people and what are the barriers to getting the message across?

Although we are a small charity, we have been fortunate to get long-standing support, especially from the Countryside Council for Wales (CCW), and this has helped us to do our bit to get people and biodiversity together on as wide a front as possible since the Denmark Farm project was first founded in 1987. Over the years we have found that people, who hitherto have had little or no interest or knowledge of wildlife, can become keen if they are given an enthusiastic lead and, most importantly, shown how they can make a 'hands on' contribution. We all know that whether it's a wildlife pond in the local school grounds or some strategically sited bird boxes to make up for the lack of dead or dying trees in an area, there's always something that can be done, whatever the starting point.

Angie Polkey

A demonstration plot at Ryton Gardens

However, there is often a lack of confidence and a feeling that wildlife is best left to the 'experts'. "I can't tell a sparrow from a starling so why bother?" The remedy here is some good advice coupled with a large dose of enthusiasm! Getting people actively involved in simple, low cost measures can make a big difference. This also provides tangible evidence of wildlife benefit with the added bonus of helping to make the local environment a more attractive, interesting and vibrant place to live and work in.

We offer several services for anyone who wants to create or restore wildlife habitat or help wildlife in other ways. One of the most important aspects of this guidance is really just enabling people to understand what's going on, ecologically speaking. Their new appreciation helps them to adopt a 'lighter touch' and no longer to feel they have to control everything. We know from our long experience at Denmark Farm that there is something both humbling and healing for the planet, as well as for ourselves, when we let nature guide us in our actions rather than try to subvert natural processes. This sometimes leads us to act as a brake on the 'quick fix approach' and instigate some basic monitoring and assessment before actually doing anything.

New Wildlife Helpline

We regularly have requests for advice from all parts of the community on how to help wildlife. Farms, smallholdings, gardens, school grounds and church yards have all featured, as well as animals such as badgers, birds and bats. We felt that these ad hoc contacts indicated the demand for a more organised service. CCW agreed and have helped fund a new three year pilot scheme for anyone in Wales who wants to help wildlife on their land, in their garden or community area, or has a question or concern about wildlife in their locality.

It is essentially a telephone / email helpline backed by the Trust's ecological advisors Richard Williams

Photos: Neil Taylor and Neil Smith

Robins, blue tits, great tits, nuthatch, pied flycatchers and great spotted woodpeckers all use Denmark Farm nest boxes.

Garden trimimngs heaped into 'habitat piles' provide homes for woodmice, other small mammals, and many other creatures

and Angie Polkey. Frequently, the questions are very simple and often need quick, practical tips rather than in-depth advice. Sometimes it's a case of stopping someone from doing something that would damage valuable existing habitat if they went ahead (e.g. digging out biodiverse damp pasture to site a deep, square-sided pond miles from any other freshwater habitat). Also, it can often be a case of doing less rather than more. Cutting a smaller area of grass (and leaving the rest to flower) or creating habitat piles rather than bonfires are good examples that cost nothing. Identifying the ecological 'gaps' at a site also means that we can recommend the most fruitful avenues for more targeted intervention, such as providing a bird or bat box. All these little 'stepping stones' add up to a much greater collective boost to biodiversity as well as bringing more joy into people's everyday lives.

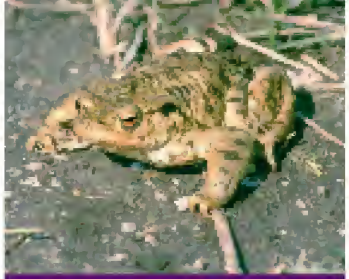
If we cannot help the enquirer directly, we try to find other organisations, resources and services that can. For those who can travel to Denmark Farm, we also offer a free consultation session by appointment.

Biodiversity's the Business!

Many large corporations spend millions on promoting themselves as 'environmentally aware', sustainable and forward thinking, and we saw no reason why our local businesses cannot do the same – without breaking the bank! Again, it's really a case of providing enthusiastic and experienced advice and helping to identify some very affordable, wildlife-friendly options. The farming community already helps by participating in agri-environment schemes but we and CCW thought that other businesses could also play a part – and improve their own marketing profile to customers as well as their 'green credentials' when tendering for business themselves.

This has given rise to another CCW-funded pilot to help businesses around the Teifi valley area, large or small, to introduce simple, low cost measures at their work premises, which often involve some surrounding land areas. The aim is not only to help wildlife but also to enhance the company's business image to customers as an environmentally aware, forward thinking concern. This service includes an advisory visit to their business premises and the chance to receive a lot more ongoing advice in return for a small subscription fee.

Every year we run courses from the Denmark Farm Conservation Centre for landowners, conservation and countryside management professionals beginning or developing their career in conservation, and other interested individuals from all over Wales and England. The emphasis is on practical habitat restoration courses and developing key fieldwork and



Bioamrywiaeth i bawb

Mae codi ymwybyddiaeth yn elfen allweddol o unrhyw gynllun gweithredu bioamrywiaeth. Ers 1987 bu Denmark Farm yn gweithio i ddarganfod ffyrdd o gysylltu pobl a bywyd gwyllt yn llwyddiannus ac i chwalu'r gred mai rhywbeth i arbenigwyr yn unig yw cadwraeth.

Mae rhannu brwdfrydedd a chyngor da wedi bod yn sail i'r holl weithgaredd. Gyda chymorth Cyngor Cefn Gwlad Cymru sefydlwyd gwasanaeth peilot i roi cyngor i unrhyw un ynglŷn â gweithredu er lles bywyd gwyllt. Gwelwyd mai'r hyn sydd ei angen, yn aml, yw cyngor cyflym i roi hyder i unigolion, i'w hatal rhag gwneud camgymeriadau sylfaenol ac i'w cyfeirio at ffynonellau eraill o wybodaeth fanylach. Drwy gynllun arall, cafodd busnesau o bob maint yn Nyffryn Teifi gymorth i gyflawni gwelliannau amgylcheddol a thrwy hynny i hybu eu hunain yn well fel cwmnïau blaengar, cydwybodol. Sefydlwyd menter arbrofol arall yn ddiweddar i roi cymorth ymarferol i berchnogion tir sydd y tu hwnt i gyrraedd y prif gynlluniau amaeth-amgylcheddol. Mae ymrywmiad Denmark Farm at arbrofi, addysgu a rhannu gwybodaeth yn gyfraniad pwysig at wireddu gweledigaeth ar gyfer ein bywyd gwyllt.

Photos: Neil Taylor and Neil Smith

The azure damsel fly will frequent even the smallest of wildlife ponds

Hedge bank corridor aids spread of wildflowers such as primrose

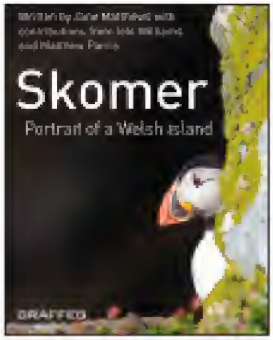
survey skills. We have formed a very useful partnership with the University of Aberystwyth School of Lifelong Learning, which means that many of the courses can be subsidised to keep charges to participants down.

The Ceredigion Biodiversity Enhancement Scheme was a major Objective 1 funded project, which ran over 2003-2005. It has been successfully completed but all information, knowledge and experience gained from this scheme is available to Wales' smallholders and landowners, especially those with land which is outside mainstream farm conservation schemes.

Our website also features articles offering advice on grassland and wetland habitat restoration. These are drawn from the long-term case study at Denmark Farm, and are backed by a series of conservation guides with the emphasis on practical, hands-on guidance.

All these schemes and resources are designed to contribute to Local Biodiversity Action Plans and to complement other regional initiatives to boost wildlife. If you would like any further information, please contact the Trust: on **01570 493358**; **info@shared-earth-trust.org.uk** or **www.shared-earth-trust.org.uk**

Malcolm Magee *is Coordinator, the Shared Earth Trust.*



SKOMER PORTRAIT OF A WELSH ISLAND
Jane Mathews.
Graffeg 2007
£14.99 paperback

This is a book illustrating one of the finest natural history islands, not just in Great Britain but in the whole of Europe – indeed, some would argue one of the finest in the world. The author Jane Mathews first visited Skomer as a volunteer for a week. There she met and married the warden Juan Brown and she has lived there since 2003.

She has brought together a superb collection of colour photographs, from land and the sea, both above and below the waves, courtesy of a small band of contributors. These are supplemented by her own photographs, linking captions and minimal texts.

There are six main sections, commencing with the sea, followed by landscape, including the recent £3.1 million project to renovate the farmhouse buildings and the original warden's house, though this was not constructed by the RAF as described. Do Manx shearwaters still nest in the cellar as they did formerly, I wonder? The populations section includes human visitors, 15,000 a year. Then follows a kaleidoscopic display of changing colours and patterns. Survey and studies are covered, as is the nightlife, with the scene dominated by Manx shearwaters – 128,000 pairs making it the largest colony in the world.

Sadly the North Pond, enlarged in 1965 and with such a range of waterbirds, has been missed. Equally disappointing is the absence of the bird migrants, regular visitors and rare vagrants, birds providing so much pleasure to those who watch them.

If you have previously been to Skomer, no matter on how many occasions, you will find much to enjoy, so purchase a copy, then give another to a friend who has yet to make the crossing. For this sumptuous collection will surely encourage more people to see and enjoy this magnificent nature reserve.

David Saunders

LINNAEUS - GENIUS OF UPPSALA
Helen Harnesk Hallgren & Fallgren, 2007
£9.99, 123 pp.

This small, smartly produced and extensively illustrated hardback is one of the books commemorating the tercentenary of Linnaeus' birth.

The early pages are packed with uninteresting facts. For example, no one knows what the Botanic Garden's plant labels looked like in the 18th century; many houses in Uppsala were painted red, though many not; and student lodgings had the ceiling at 2.15 metres.

The book improves when it focuses on Linnaeus' career. Uppsala University in 1728 sounds like the sort of place that supplies TV doctors with PhDs. Students' dissertations were written by their professors and lectures were scarce. Linnaeus never received a botany lecture, yet by his second year as a student he was the botany tutor and had invented the plant classification system that we use today. His fast-track career is given a concise and very readable treatment. By the 1740s he was clearly a celeb. His nature rambles concluded with French horn and drum playing him home with a chorus of Vivat Linnaeus from the participants, very like mine.

There is an interesting chapter on the agriculture of the time, including problems with pigs roaming the streets, another issue that has a modern (canine) parallel. Then we are back to descriptions of the buildings in "A walk through Uppsala". (Many of the houses were red, you know.) I would have preferred more about the surrounding countryside with comparisons between then and now.

Overall it was an interesting read with plenty of photographs and 18th century drawings. The twenty chapters are short, so even the stodgier ones soon pass. Some other books about Linnaeus are more informative, but from this one I learned a new meaning for 'conserving'; and on p91 we are finally told why the houses were red.

John Bratton

CLYCHAU'R GOG A THROSEDDAU

Yn ystod fy saith mlynedd fel swyddog troseddau amgylchedd-dol a bywyd gwyllt efo Heddlu Gogledd Cymru, rydw i wedi dod ar draws ymhell dros ddwy fil o achosion yn ymwneud ag amrywiaeth eang o droseddau yn erbyn bywyd gwyllt. Fe arweiniodd un digwyddiad ym mis Medi 2006 at lawer mwy o alwadau nag arfer: nid dwyn wyau prin nac erlid moch daear oedd dan sylw, yn groes i'r disgwyl, ond cynaeafu clychau'r gog ar fryn yn Llanaelhaearn.

Yn ystod y mis Medi hwnnw, daeth criw o labrwyr i Lanaelhaearn – gweithwyr a oedd wedi cael eu cyflogi gan gwmni o Norfolk – ac yno y buont am chwe wythnos yn cynaeafu clychau'r gog gwyllt efo caniatâd y tirfeddiannwr. Bob gwanwyn, roedd trigolion yr ardal wrth eu bodd yn gweld arddangosfa ysblennydd y blodau hyn, a mynegodd llawer o bobl bryder mawr ynghylch yr hyn oedd yn digwydd. Roedd pawb yn berwi gan emosiwn, ac roedd hi'n ymddangos fel pe bai'r holl sefyllfa yn arwain at broblemau o ran trefn gyhoeddus yn yr ardal. Siaradwyd efo'r tirfeddiannwr a chynrychiolydd y cwmni, ond roedden nhw'n mynnu bod y bylbiau'n cael eu symud oddi yno yn gyfnewid am gael gwared â rhedyn oddi ar y safle.

Caiff clychau'r gog (*Hyacinthoides non scripta*) Prydain eu gwarchod dan ddarpariaethau Deddf Bywyd Gwyllt a Chefn Gwlad 1981, ond eu gwarchod rhag cael eu gwerthu'n

Helmedau ac esgidiau!

Helmets and boots!

unig a wna'r ddeddf. Chaiff y blodau mo'u gwarchod rhag cael eu dadwreiddio os bydd y tirfeddiannwr yn rhoi ei ganiatâd. O'r herwydd, roedd yr esboniad a gynigiodd y cwmni a'r tirfeddiannwr yn awgrymu nad oedd trosedd o fath yn y byd wedi cael ei chyflawni. Fodd bynnag, mae'r term 'gwerthu' yn cael ei ddiffinio ymhellach yn y ddeddfwriaeth, a gall hefyd gynnwys ffeirio neu gyfnewid. Yn amlwg, roedd y bobl dan sylw wedi trefnu rhyw fath o gyfnewid – darparu llafur yn gyfnewid am fylbiau clychau'r gog.

Ar ôl cadarnhau hyn, cafodd y ddwy ochr eu cyfweld yn ffurfiol, a daeth i'r amlwg fod hysbysebion yn cynnig cyfle i bobl brynu planhigion gwyllt i'w cael yn nifer o gyhoeddiadau'r gymuned ffermio ers sawl blwyddyn. Y ddiddorol ddigon, roedd yr hysbysebion yn cynnig cyfle i'r darllenwyr wneud arian heb iddynt orfod codi bys i wneud dim. Fodd bynnag, dim ond cynigion i brynu blodau a geid, a doedd yna ddim sôn am eu gwerthu. Hysbyseb o'r fath a sbardunodd yr hyn a ddigwyddodd yn Llanaelhaearn.

Wrth iddo gael ei gyfweld, allai cynrychiolydd y cwmni ddim dweud i sicrwydd faint o fylbiau oedd wedi cael eu tynnu oddi ar y safle, ond bu'n rhaid iddo gyfaddef y gallai'r ffigwr fod oddeutu 200,000. Hefyd, esboniodd nad oedd y bylbiau wedi cael eu tynnu oddi yno er mwyn eu gwerthu i'r cyhoedd ond eu bod, yn hytrach, yn mynd i gael eu lluosogi yn Norfolk. Yna, y bwriad oedd casglu'r hadau a'u plannu, gan werthu'r bylbiau a fyddai'n cael eu creu o hynny.

Fis Medi 2007, daeth yr achos gerbron Llys Ynadon Pwllheli. O ganlyniad, cafodd y tirfeddiannwr ddirwy o £2,000 a chafodd cynrychiolydd y cwmni ddirwy o £5,000, a bu'n rhaid i'r ddau dalu'r costau. Hyd y gwn i, dyma'r euogfarn gyntaf yn y DU ar gyfer trosedd o'r fath, gan fod pob achos yn y gorffennol wedi delio efo dwyn bylbiau dan warchodaeth yn hytrach na'u gwerthu. Ni fyddai'r achos wedi llwyddo heb gymorth ac arbenigedd nifer o bobl, gan gynnwys Dr Trevor Dines o Plantlife, tîm bioamrywiaeth Cyngor Gwynedd a Gwasanaeth Erlyn y Goron. Rydw i'n hynod ddiolchgar i bob un ohonynt.

Y Rhingyll Pete Charleston

BLUEBELL CRIME

During my seven years in post as wildlife and environmental crime officer for North Wales Police, well over 2000 incidents have been bought to my attention covering a broad range of wildlife crimes. One incident, in September 2006, resulted in far more calls to me than any other: not the theft of rare birds' eggs or badger persecution as you might expect, but the harvesting of bluebells from a hillside in Llanaelhearn.

That September saw a gang of labourers, employed by a company in Norfolk, arrive in Llanaelhearn where they spent six weeks harvesting wild bluebell bulbs with the consent of the landowner. The display of these flowers each spring is cherished by the local community and many people expressed their strong concern at what was happening. Emotions ran high and seemed likely to spill over into public order problems in the area because of the harvesting activity. Both the landowner and the representative of the company were spoken to; they maintained that the bluebell bulbs were being removed in exchange for bracken clearance on site.

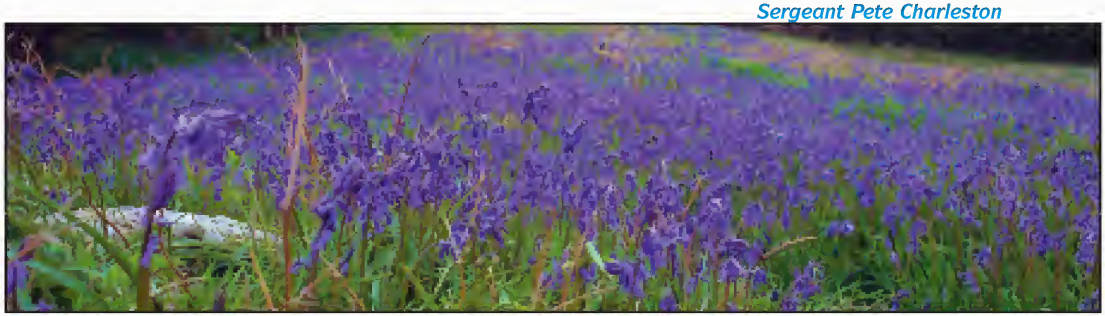
British bluebells (*Hyacinthoides non scripta*) are protected under the provisions of the Wildlife and Countryside Act 1981, but only in respect of selling. They are not protected against uprooting with the landowner's consent. As such the explanation provided by the company representative and the landowner seemed to suggest that no offences were being committed. However the term 'sale' is further defined in the legislation to include barter or exchange. It seemed clear that an exchange had taken place – the provision of labour in exchange for bluebell bulbs.

Having established this, both parties were formally interviewed, and it became apparent that over a number of years advertisements containing offers to purchase wild plants had appeared in a number of publications generally taken by the farming community. Interestingly, the advertisments invited readers to make money doing nothing, but only contained offers to purchase and made no mention of sale. Such an advert was the catalyst for the activity in Llanaelhearn.

When interviewed, the company representative could not say for certain how many bulbs had been removed from the site, but there was an acceptance that it may well have been 200,000. He also explained that the bulbs had not been removed in order to sell on to the public but were to be propogated in Norfolk, and the seeds collected and planted with only the subsequent bulbs being sold.

In September 2007 the case came to trial at Pwllheli Magistrates Court. As a result the landowner was fined £2,000 and the company rep was fined £5,000 with each having some costs to be paid. To my knowledge this is the first conviction in the UK for such an offence, with previous cases involving theft rather than sale of protected bulbs. The case could not have been bought to this succesful conclusion without the assistance and expertise provided by many, including Dr Trevor Dines of Plantlife, the biodiversity team at Gwynedd County Council and the Crown Prosecution Service. I am very grateful to them all.

Sergeant Pete Charleston



Mel Parry Photo Library

Islands round-up

2006 NEWS FROM YNYS ENLLI (Bardsey Island)

The Bird Observatory's Report for 2006 is now available (details on www.bbfo.org.uk or phone 01626 773908). It includes excellent colour photographs of rare migrants, cetaceans and island wildlife, plus many small black and white photographs (birds, flowers, cetaceans, insects).

Migrant birds in 2006

Things really hotted up in early June, with a male red-breasted flycatcher (with a red breast) on 1st, followed the next day by a black-headed bunting. There was a stream of uncommon migrants in September including wrynecks, firecrests, a golden oriole and a short-toed lark. Even rarer was a Bonelli's warbler on 24th, which visitors were able to examine in the hand. However the highlight of late September was the arrival of flocks of Balearic shearwaters, which reached 132 on 28th. This species, which breeds on western Mediterranean islands, is the size and shape of a Manx shearwater, but easily distinguished by its paler brown back, and dirty brownish underparts. The Manx, in comparison, is very clear-cut, dark above and white below. The Bardsey birds were feeding close inshore in mixed flocks with razorbills, kittiwakes and other gulls. The Balearic shearwater is the rarest bird (in a global context) which occurs regularly in Britain, so this was a good opportunity to see a true rarity.

Lighthouse attractions

Bardsey's light is notorious for attracting large numbers of night-flying migrants (and Manx shearwaters) under overcast and wet conditions. If it is windy, many birds may be killed by striking the tower during these attractions. In the spring, there was a heavy attraction of grasshopper warblers on 26th April, with almost 200 present and 11 killed. There were several such events in the autumn, particularly the night of 29th October when over 800 redwings were attracted and 116 killed. A Radde's warbler, on passage from Siberia, was in the Observatory garden on the same day, with a second bird attracted to the light that night. These were the fourth and fifth records for Wales.

Risso's dolphins showing well

The two commonest cetaceans in North Wales generally are the harbour porpoise and the bottlenose dolphin. The resident population of the latter in Cardigan Bay is well-known, and groups can often be seen from boats off Pwllheli and Llanbedrog. Porpoises feed regularly around Bardsey, but the commonest dolphin here is Risso's, a larger animal than the bottlenose. The Whale and Dolphin Conservation Society has been conducting counts from Bardsey since 2001, and is building up a good database of sightings and photographs. During their September 2006 visit, Risso's dolphins were seen on four dates, including a group of nine adults and three calves on 17th. Boat surveys on two days drew blanks, but on a third occasion at least 35 individuals were encountered, in five different groups. Come to Ynys Enlli in September to see Risso's dolphins and porpoises!

Daniel Brown

Red-flanked bluetail

New bird for Wales

Whilst staying on Ynys Enlli for a week at the beginning of October, Ben Stammers, who works for North Wales Wildlife Trust, spotted a **red-flanked bluetail** *Tarsiger cyanurus* in one of the island's gardens. The bird, which is a kind of chat, and breeds mostly in Northern Russia, has never been recorded in Wales before, and therefore caused some excitement. A beautifully-marked adult male, the bird was well-photographed and documented by those lucky enough to see it on October 1st, and was later caught and ringed by Steve Stansfield, the Observatory warden. In the next edition of *Natur Cymru*, Ben Stammers will write about this addition to the Welsh list, and why it may have turned up so far west.

GEOFF GIBBS

MAMMAL ROUND-UP

Pine martens

The use of DNA analysis in confirming the origins of possible marten scats has revealed exciting news for those searching for evidence of the pine marten in Wales. Previously the Vincent Wildlife Trust (VWT) had proved that field identification of marten scats is unreliable, but with the DNA analysis expertise of the Waterford Institute of Technology (WIT), mammal surveyors from Wales collected 24 possible scats from Cwm Rheidol in June. They found one positive DNA result from a scat collected quite close to Devil's Bridge. This showed that it was from the type of animal found in Scotland. It represents an exciting breakthrough and confirms that the species still occurs in Wales. Now research of Welsh marten material from museums is underway to see if there is any evidence that Welsh pine martens are distinct from their cousins in Scotland and Ireland. Plans are also afoot to roll out a programme of scat searches and DNA analysis throughout Wales.

Bats

There has been an exciting discovery of another two greater horseshoe bats, during hibernation surveys last winter by the Gwynedd Bat Group. Jean Matthews found a ringed female in January in a mine adit on Woodland Trust land in the Conwy Valley, and Pauline Barber found an unringed male in a mine near Barmouth in March. This means that at least four and possibly five greater horseshoes have been recorded near the north Wales coast. The bats that are now in the Conwy Valley could form the beginnings of a maternity colony in north Wales.

CCW

Seal pup

Dormice

Special efforts are being made in both south and north Wales to research the distribution and population levels of dormice. The South Wales Dormouse Survey, consisting of 14 local authorities, the Wildlife Trusts in South Wales, and the Countryside Council for Wales (CCW), seeks to improve the current poor understanding of this shy animal by involving volunteers, schools and community groups. Information packs are available from http://www.biodiversitywales.org.uk/English/GetInvolved/ or contact Sarah Mellor, Bridgend Biodiversity Officer, on 01656 643667

The North Wales Wildlife Trust is studying known dormouse sites, discovering new ones and looking at movement between different woods, with funding from The Mammal Trust UK and CCW. In September the Trust found a dormouse in a former dormouse woodland near Ruthin and discovered a new site. In Flintshire, 29 were found across three sites, with 17 from one site alone.

The North-west England Dormouse Project has been monitoring introduced dormice in Wych Valley in south Cheshire since 1996. The population has been increasing gradually in numbers and area occupied. Now, a natural dormouse population is also being monitored at Bontuchel near Ruthin. Both populations had low counts in 2005, then recovered in 2006 with a good breeding year. At Bontuchel, where winters are thought to be more severe, the dormice appear to enter hibernation much earlier.

Marine

In early October, three or four white-sided dolphins were spotted from Ynys Enlli. Risso's dolphins and porpoise were also seen, along with at least six seal pups.

Sarah Perry, at the fully opened and refurbished Cardigan Bay Wildlife Centre in Newquay, reports fantastic sightings of harbour porpoise and bottlenose dolphins over the summer, with dolphins still around in October. She also notes fewer sightings of Atlantic grey seals this year. Opening times during the winter will be through prior arrangement but it will be open again April onwards in 2008.

FRANCES CATTANACH is Director of North Wales Wildlife Trust

Hysbysfwrdd / Noticeboard

If you would like your wildlife event to feature on these pages please contact Mandy Marsh on 01248 385574 or email m.marsh@ccw.gov.uk (entries may be edited). Please mention Natur Cymru if you attend any of these events.

Natur Cymru – the Nature of Wales

Are you interested in getting involved with Natur Cymru? We may be looking for a dynamic company secretary, to work part time helping to run the company and increase our readership. If you think you may be interested, please give us a call!

Hoffech chi fod yn gysylltiedig â Natur Cymru? Mae'n bosibl y byddwn yn chwilio am ysgrifenyddes ddeinamig i'r cwmni, i weithio rhan-amser yn cynorthwyo i redeg y cwmni ac i gynyddu nifer ein darllenwyr. Os ydych yn meddwl y gallai fod gennych ddiddordeb, rhowch alwad i ni os gwelwch yn dda!

Plas Tan y Bwlch

COURSES 2008

4-7 Feb *Management Planning in Practice.* The main focus of the course will be to provide an opportunity for individuals to discuss and review management plans that they are currently working on.
18-20 Feb *Access for All - Managing and Delivering countryside access for people with disabilities.* Practical guidance in overcoming the physical and other barriers which cause some people to be excluded from enjoying the countryside.
3-7 Mar *Access and Public Rights of Way, Law and Management.* Gain further knowledge and understanding of these issues (including the CRoW Act) and the skills required in their effective management.
10-13 Mar *Forest Habitat Networks - Building New Wildlife Friendly Landscapes* Key concepts in landscape ecology and their application through woodland conservation policies and practices at local to national scales.

For more information on these courses please visit **www.plastanybwlch.com** or phone **01766 590324**

School of Education & Lifelong Learning, Aberystwyth

COURSES 2008

16 Jan *The Conservation of Britain's Biological Resources.* 8 sessions, £45.
11 Mar *Going Green - How to Assess Your Environmental Impact and Live More Sustainably.* 3 day course, £45.
31 Mar *Nature Reserves and Habitat Survey*, £60.

For details or to enrol, please contact **learning@aber.ac.uk 01970 621580**

Fenn's, Whixhall & Bettisfield Mosses NNR

13 Feb 2008 *Wildlife Gardening Workshop*, 10.00-4.00. Natural England Manor House NNR Base, Moss Lane, Whixall. Contact **Joan Daniels** on **07974 784799** or see **www.naturalengland.org.uk**

2nd Sunday and 4th Thursday of every month *Practical volunteering tasks* Contact **01948 880362**.

Moth Recording in North Wales

PROGRAMME

MOTHERS' UNION - Informal meetings of North Wales Moth Group
For further details:
Julian Thompson 01492 592595, julian.pensychnant@btinternet.com

Shared Earth Trust

COURSES 2008

28-30 Mar *Mosses, Liverworts & Lichens – an introduction to identification.* £60.
Contact **01570 493358, www.shared-earth-trust.org.uk**, or Email **learning@aber.ac.uk**
Tel. 01970 621580.

North East Wales Wildlife

COURSES 2008

1st week Feb *Invasive Species Training* (Countryside Managers)
Early Mar *Invasive Species Training* (Anglers/Garden Centres)
27 Mar *Basic Amphibian Course*
29-30 Mar *Advanced Amphibian Course*

VOLUNTEERING 2008

17 Jan *Pond Management Task Force*, Flintshire, 10am **Contact 01352 742238**.
26 Jan *Reedbed creation*, Brookhill, 10am. Wellies essential SJ 281 653.
14 Feb *Woodland Management at Rhydymwyn*. Steel toe capped boots recommended SJ 205 665.
16 Feb *Hafod Willow Bed Planting*, 10am. SJ 313 462
28 Feb *Treecare at Llwyni Valley*, 10am. SJ 284 686.
8 Mar *Create a Seat and Willow Arbor*, Rhydymwyn Valley, 10 am. SJ 205 665.
13 Mar *Grassland management*, Rhydymwyn, 10am. SJ 205 665.

For details **weo@newwildlife.org.uk** or phone **01352 742 115**

RSPB

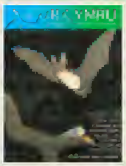
30 Dec *Birdwatching at Blackpill Wildlife Centre Swansea.* 10-1pm. Come talk to members of the RSPB Local Group in the lifeguard Hut. Lots of information about the site, Swansea Bay and bird watching. Enquiries **Daphne** or **Colin Jones 01269 822876**.
22 Dec *Come and meet Father Christmas at Lake Vyrnwy Reserve.* **11am.** Guided walk, with mince pies and Father Christmas in the RSPB shop. Enquiries **01691 870278.**

Diolch am y lluniau i / For illustrations, thanks to:
Joyce Fleur, Mandy Marsh, Natural England, Alastair Robertson.

Back issues of *Natur Cymru* (Nos 2 - 24) are available priced £2.50

Number Rhif 17

Number Rhif 18



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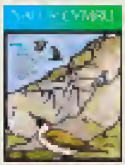

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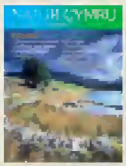

Number Rhif 24

Winter Fens: Peter Wakely/Natural England

Winter sunset, Benllech, Anglesey

Gaynor Ainscough

NATUR CYMRU WINTER/GAEAF 2007

www.naturcymru.org.uk

£3.50